PRELIMINARY / FINAL LAND DEVELOPMENT PLAN

FOR

MARPLE ASSOCIATES, LP

PROPOSED MID-COUNTY SHOPPING CENTER

LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY; PENNSYLVANIA

COMMONWEALTH of PENNSYLVANIA
COUNTY of DELAWARE

ON THE _____ DAY OF _____ A.D. 20____ BEFORE ME, THE SUBSCRIBER, A NOTARY PUBLIC OF THE COMMONWEALTH OF PENNSYLVANIA, RESIDING IN _____, PERSONALLY APPEARED _____ WHO ACKNOWLEDGED HIM/HERSELF TO BE THE _____ OF _____ A PENNSYLVANIA LIMITED PARTNERSHIP, AND THAT AS SUCH ___ _____, BEING AUTHORIZED TO DO SO, HE/SHE EXECUTED THE FOREGOING PLAN BY SIGNING THAT THE SAID PARTNERSHIP IS THE OWNER OF THE DESIGNATED LAND, THAT ALL NECESSARY APPROVAL OF THE PLAN HAS BEEN OBTAINED AND IS ENDORSED THEREON, AND THAT THE SAID PARTNERSHIP DESIRES THAT THE FOREGOING PLAN MAY BE DULY RECORDED.

NOTARY PUBLIC:_____

MY COMMISSION EXPIRES:_____

_____
OWNER

RECORDED IN THE OFFICE OF THE RECORDER OF DEEDS OF DELAWARE COUNTY AT MEDIA, PENNSYLVANIA IN PLAN BOOK _____, PAGE _____, ON THE _____ DAY OF _____, 20_____.

_____
(DEPUTY) RECORDER OF DEEDS

RECOMMENDED FOR APPROVAL BY THE PLANNING COMMISSION OF MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

THIS _____ DAY OF _____, _____

APPROVED BY THE BOARD OF COMMISSIONERS OF MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

THIS _____ DAY OF _____, _____

REVIEWED BY THE DELAWARE COUNTY PLANNING DEPARTMENT

THIS _____ DAY OF _____, _____

DIRECTOR

REVIEWED BY THE MARPLE TOWNSHIP ENGINEER

ENGINEER DATE

KNOW WHAT'S BELOW.
CALL BEFORE YOU DIG

STATE of PENNSYLVANIA ONE CALL
DIAL 811 or 1-800-242-1776
WWW.PA1CALL.ORG

PLANS PREPARED FOR

APPLICANT :

MARPLE ASSOCIATES, LP.

1604 WALNUT STREET, 4th FLOOR
PHILADELPHIA, PENNSYLVANIA 19103
ATTENTION: CLAUDE DEBOTTON
PH: 215-735-4400
FX: 215-545-7050

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CONSTRUCTION DETAILS	DT3
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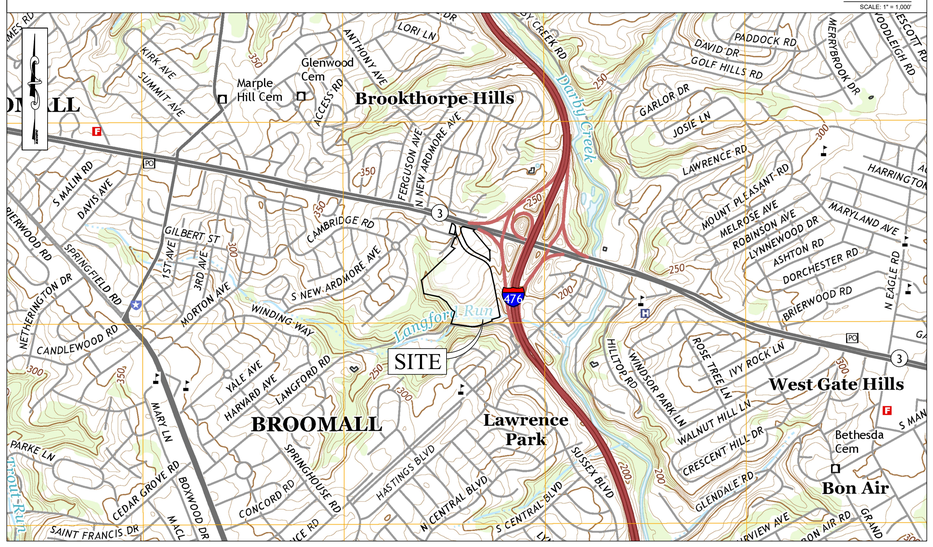
LOCATION MAP
SCALE: 1" = 500'

USGS MAP
SCALE: 1" = 1,000'



REV.	DATE	COMMENT	BY
REV.	DATE	COMMENT	BY

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 076556

NOT FOR CONSTRUCTION

PROJECT No: 140012
DRAWN BY: B. NAGENGAST / M. RIVEZZI
CHECKED BY: R. WHITMORE
CAD I.D. #: 01_CL_140012

LANDCORE
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PRINCETON, NJ
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PRINCETON, NJ 08540
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WORKING WITH YOU
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SUITE 100
LANCASTER, PA 17602-5588
PHONE: 717-435-2070
2070 BERN CENTER BOULEVARD
SUITE 100
READING, PA 19610
PHONE: 610-372-0293

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP; DELAWARE COUNTY; PENNSYLVANIA

TITLE: COVER SHEET

SCALE: (H) AS NOTED
(V)

DATE: 2017 - 12 - 22

SHEET: CL

REV. No: 0

D:\GROPRA (LANDCORE)\PROJECTS\2014\140012 - MRC - MARPLE PA\DRAWINGS\06-SITE PLANS\01_CL_140012-----LAYOUT: COVER SHEET

BUILDING AREA / PARKING CHART			
LOT 1	AREA	REQUIRED	PROPOSED
PROPOSED SUPERMARKET	74,544	794 STALLS	805 STALLS or 4.1 RATIO
PROPOSED FITNESS CENTER	34,088		
PROPOSED OFFICE / RETAIL (1st FLOOR)	40,000		
PROPOSED OFFICE / RETAIL (2nd FLOOR)	40,000		
PROPOSED FUTURE PAD A	5,500		
PROPOSED FUTURE PAD B	4,200		
EXISTING STRUCTURE TO REMAIN	2,337		
TOTAL LOT 1 BUILDING AREA	*200,669*		
TOTAL LOT 1 BUILDING AREA EXCLUDING STRUCTURE TO REMAIN	*198,332*		
LOT 2 (BY OTHERS)	AREA	REQUIRED	PROPOSED
(*) PROPOSED ROYAL FARMS CONVENIENCE STORE	5,183	31 STALLS	71 STALLS or 9.1 RATIO
(*) PROPOSED BANK	2,613		
TOTAL LOT 2 BUILDING AREA	*7,796*		
LOT 3	AREA	REQUIRED	PROPOSED
EXISTING RESIDENCE	2,405	N/A	N/A
TOTAL BUILDING AREA (EXCLUDING LOT 3 & LOT 1 RESIDENCE)	**206,128**	825 STALLS	876 STALLS or 4.3 RATIO

(*) BUILDING SQUARE FOOTAGE AND PARKING STALL DATA TAKEN FROM LAND DEVELOPMENT PLANS FOR ROYAL FARMS - MARPLE, AS PREPARED BY ROBERT E. BLUE CONSULTING ENGINEERS, PC: DATED 2016-09-09

KNOW WHAT'S BELOW.
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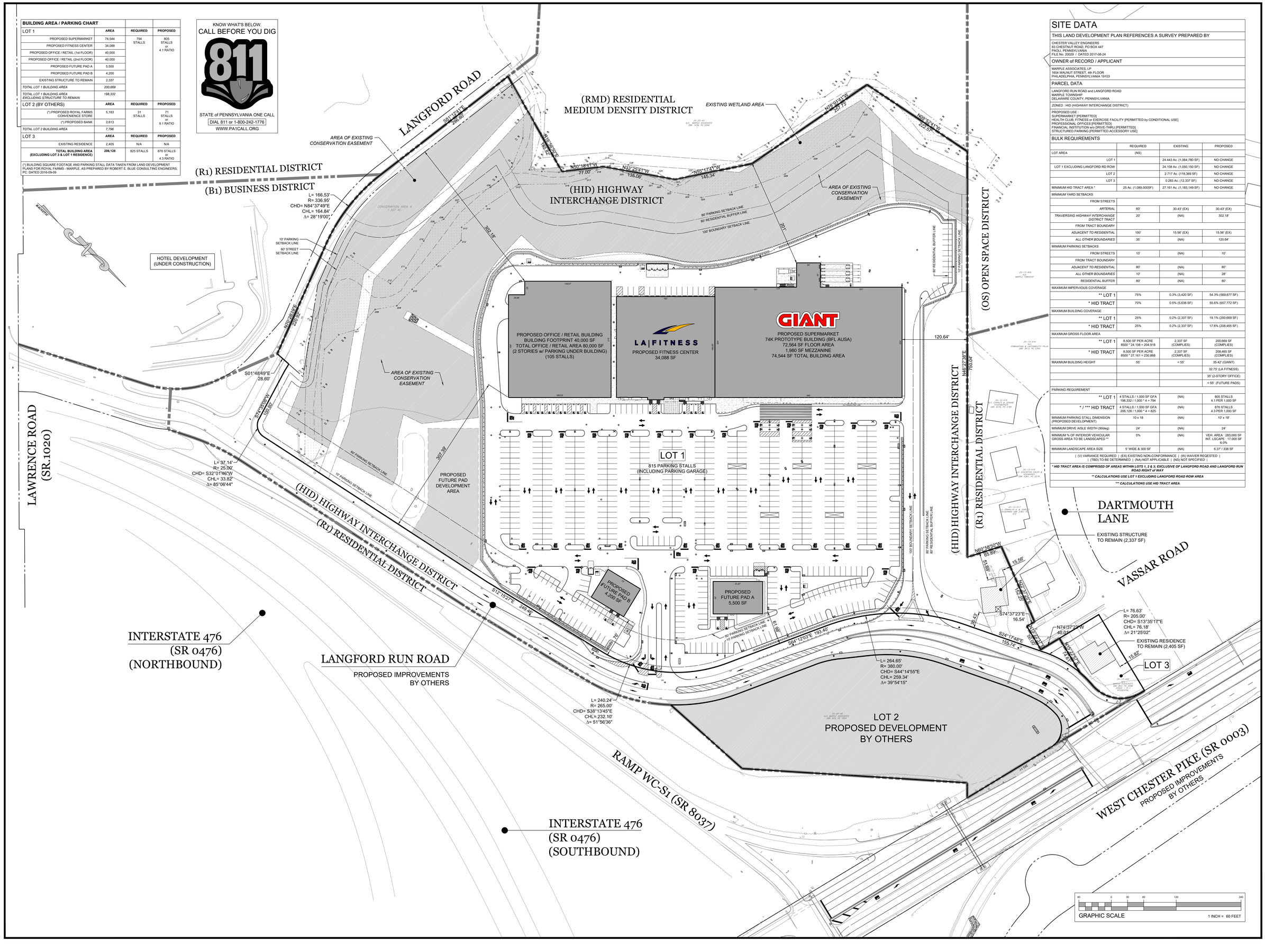

SITE DATA

THIS LAND DEVELOPMENT PLAN REFERENCES A SURVEY PREPARED BY

CHESTER VALLEY ENGINEERS
83 CHESTNUT ROAD, PO BOX 447
PAOLI, PENNSYLVANIA
FILE No. 20029 / DATED 2017-08-24

OWNER of RECORD / APPLICANT

MARPLE ASSOCIATES, LP
1604 WALNUT STREET, 4th FLOOR
PHILADELPHIA, PENNSYLVANIA 19103

PARCEL DATA

LANGFORD RUN ROAD and LANGFORD ROAD
MARPLE TOWNSHIP
DELAWARE COUNTY, PENNSYLVANIA

ZONED : HID (HIGHWAY INTERCHANGE DISTRICT)

PROPOSED USE :
SUPERMARKET [PERMITTED]
HEALTH CLUB, FITNESS or EXERCISE FACILITY [PERMITTED by CONDITIONAL USE]
PROFESSIONAL OFFICES [PERMITTED]
FINANCIAL INSTITUTION w/o DRIVE-THRU [PERMITTED]
STRUCTURED PARKING [PERMITTED ACCESSORY USE]

BULK REQUIREMENTS

	REQUIRED	EXISTING	PROPOSED
LOT AREA	(NS)		
LOT 1		24.443 Ac. (1,064,780 SF)	NO CHANGE
LOT 1 EXCLUDING LANGFORD RD ROW		24.108 Ac. (1,050,150 SF)	NO CHANGE
LOT 2		2.717 Ac. (118,369 SF)	NO CHANGE
LOT 3		0.283 Ac. (12,337 SF)	NO CHANGE
MINIMUM HID TRACT AREA *	25 Ac. (1,089,000SF)	27.161 Ac. (1,183,149 SF)	NO CHANGE
MINIMUM YARD SETBACKS			
FROM STREETS			
ARTERIAL	60'	30.43' (EX)	30.43' (EX)
TRAVERSING HIGHWAY INTERCHANGE DISTRICT TRACT	20'	(NA)	302.18'
FROM TRACT BOUNDARY			
ADJACENT TO RESIDENTIAL	100'	15.56' (EX)	15.56' (EX)
ALL OTHER BOUNDARIES	35'	(NA)	120.64'
MINIMUM PARKING SETBACKS			
FROM STREETS	10'	(NA)	10'
FROM TRACT BOUNDARY			
ADJACENT TO RESIDENTIAL	80'	(NA)	80'
ALL OTHER BOUNDARIES	10'	(NA)	28'
RESIDENTIAL BUFFER	80'	(NA)	80'
MAXIMUM IMPERVIOUS COVERAGE			
** LOT 1	75%	0.3% (3,420 SF)	54.3% (569,877 SF)
* HID TRACT	70%	0.5% (5,638 SF)	55.6% (657,772 SF)
MAXIMUM BUILDING COVERAGE			
** LOT 1	25%	0.2% (2,337 SF)	19.1% (200,669 SF)
* HID TRACT	25%	0.2% (2,337 SF)	17.6% (208,465 SF)
MAXIMUM GROSS FLOOR AREA			
** LOT 1	8,500 SF PER ACRE 8500 * 24.108 = 204,918	2,337 SF (COMPLIES)	200,669 SF (COMPLIES)
* HID TRACT	8,500 SF PER ACRE 8500 * 27.161 = 230,868	2,337 SF (COMPLIES)	208,465 SF (COMPLIES)
MAXIMUM BUILDING HEIGHT	55'	< 55'	35.42' (GIANT)
			32.75' (LA FITNESS)
			35' (2-STORY OFFICE)
			< 55' (FUTURE PADS)
PARKING REQUIREMENT			
** LOT 1	4 STALLS / 1,000 SF GFA 198,332 / 1,000 * 4 = 794	(NA)	805 STALLS 4.1 PER 1,000 SF
* / *** HID TRACT	4 STALLS / 1,000 SF GFA 206,128 / 1,000 * 4 = 825	(NA)	876 STALLS 4.3 PER 1,000 SF
MINIMUM PARKING STALL DIMENSION (PROPOSED DEVELOPMENT)	10 x 18	(NA)	10' x 18'
MINIMUM DRIVE AISLE WIDTH (90deg)	24'	(NA)	24'
MINIMUM % OF INTERIOR VEHICULAR GROSS AREA TO BE LANDSCAPED **	5%	(NA)	VEH. AREA : 283,000 SF INT. LSCAPE : 17,000 SF 6.0%
MINIMUM LANDSCAPE AREA SIZE	5' WIDE & 300 SF	(NA)	6.37' / 338 SF

((V) VARIANCE REQUIRED | (EX) EXISTING NON-CONFORMANCE | (W) WAIVER REQESTED |
| (TBD) TO BE DETERMINED | (NA) NOT APPLICABLE | (NS) NOT SPECIFIED |

HID TRACT AREA IS COMPRISED OF AREAS WITHIN LOTS 1, 2 & 3; EXCLUSIVE OF LANGFORD ROAD AND LANGFORD RUN ROAD RIGHT of WAY

***** CALCULATIONS USE LOT 1 EXCLUDING LANGFORD ROAD ROW AREA***

****** CALCULATIONS USE HID TRACT AREA***

REV.	DATE	COMMENT	REV.	DATE	COMMENT	BY

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 076556

NOT FOR CONSTRUCTION

PROJECT No: 14012
DRAWN BY: B. WAGENGAST M. RIVEZZI
CHECKED BY: R. WHITMORE
CAD.D. #: 02_OMP_140012

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PITTSBURGH, PA 15235
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LANCASTER
89 MONTGOMERY AVENUE
LANCASTER, PA 17603-5308
PHONE: 717-435-8370

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: OVERALL DEVELOPMENT MASTER PLAN

SCALE: (H) AS NOTED (V)
DATE: 2017 - 12 - 22
SHEET: OMP
REV. No: 0

E&S CONTROL LEGEND

- TEMPORARY CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET
- CONTRUCTION TRAILERS / STAGING AREA
- STOCKPILE
- STONE AND CONC. BLOCK INLET PROTECTION
- FILTER BAG INLET PROTECTION
- CONCRETE WASHOUT AREA
- SOX — COMPOST FILTER SOCK
- LOD — LIMIT OF DISTURBANCE & LOCATION OF VISI-FENCE
- NPDES — NPDES BOUNDARY
- NPDES - LOD — COMBINED NPDES/LOD BOUNDARY & LOCATION OF VISI-FENCE IN NON ROADWAY AREAS
- SOILS BOUNDARY
- SEDIMENT BASIN RISER
- STORM SEWER PIPE
- OUTLET PROTECTION

EXISTING SENSITIVE RESOURCE LEGEND

- EXISTING CONSERVATION EASEMENT
- WETLANDS
- FHAZ — LIMITS OF SPECIAL FLOOD HAZARD AREA PER FIRM MAPS 42045C0101F & 42045C0102F

GRADING-UTILITY LEGEND

EXISTING ITEMS	PROPOSED ITEMS	
		RIP-RAP
		DRAINAGE FLOW
321.34		SPOT GRADE
		STORM STRUCTURE
		HYDRANT
		VALVE
		REDUCER
C	C	U/G CABLE CONDUIT
E	E	U/G ELECTRICAL CONDUIT
E/T	E/T	U/G ELECTRICAL & TELEPHONE CONDUIT
E/T/C	E/T/C	U/G ELECTRICAL, TELEPHONE & CABLE CONDUIT
G	G	U/G GAS LINE
OH	OH	OVER HEAD WIRES
FM	FM	SANITARY SEWER FORCE MAIN
S	S	SANITARY SEWER LATERAL
		SANITARY SEWER MAIN
D	D	STORM SEWER LATERAL
		STORM SEWER MAIN
T	T	U/G TELEPHONE CONDUIT
W	W	WATER MAIN
100	100	CONTOUR
FO	FO	U/G FIBER OPTIC CONDUIT

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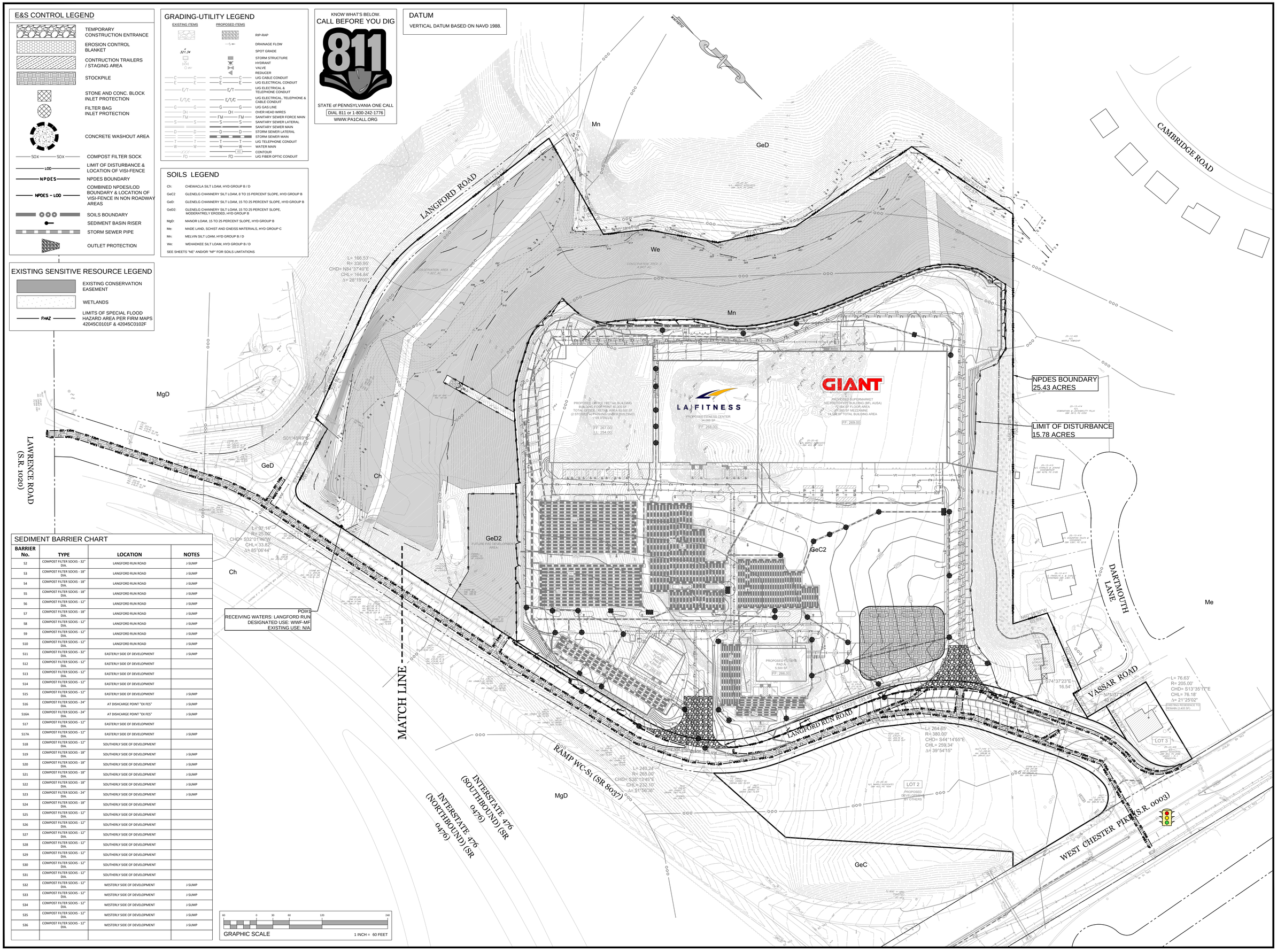
DATUM

VERTICAL DATUM BASED ON NAVD 1988.

SOILS LEGEND

Ch:	CHEWACLA SILT LOAM, HYD GROUP B / D
GeC2	GLENELG CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPE, HYD GROUP B
GeD:	GLENELG CHANNERY SILT LOAM, 15 TO 25 PERCENT SLOPE, HYD GROUP B
GeD2:	GLENELG CHANNERY SILT LOAM, 15 TO 25 PERCENT SLOPE, MODERATRELY ERODED, HYD GROUP B
MgD:	MANOR LOAM, 15 TO 25 PERCENT SLOPE, HYD GROUP B
Me:	MADE LAND, SCHIST AND GNEISS MATERIALS, HYD GROUP C
Mn:	MELVIN SILT LOAM, HYD GROUP B / D
We:	WEHADKEE SILT LOAM, HYD GROUP B / D

SEE SHEETS "NE" AND/OR "NP" FOR SOILS LIMITATIONS



SEDIMENT BARRIER CHART

BARRIER No.	TYPE	LOCATION	NOTES
S2	COMPOST FILTER SOCKS - 32" DIA.	LANGFORD RUN ROAD	J-SUMP
S3	COMPOST FILTER SOCKS - 18" DIA.	LANGFORD RUN ROAD	J-SUMP
S4	COMPOST FILTER SOCKS - 18" DIA.	LANGFORD RUN ROAD	J-SUMP
S5	COMPOST FILTER SOCKS - 18" DIA.	LANGFORD RUN ROAD	J-SUMP
S6	COMPOST FILTER SOCKS - 12" DIA.	LANGFORD RUN ROAD	J-SUMP
S7	COMPOST FILTER SOCKS - 18" DIA.	LANGFORD RUN ROAD	J-SUMP
S8	COMPOST FILTER SOCKS - 12" DIA.	LANGFORD RUN ROAD	J-SUMP
S9	COMPOST FILTER SOCKS - 12" DIA.	LANGFORD RUN ROAD	J-SUMP
S10	COMPOST FILTER SOCKS - 12" DIA.	LANGFORD RUN ROAD	J-SUMP
S11	COMPOST FILTER SOCKS - 32" DIA.	EASTERLY SIDE OF DEVELOPMENT	J-SUMP
S12	COMPOST FILTER SOCKS - 12" DIA.	EASTERLY SIDE OF DEVELOPMENT	
S13	COMPOST FILTER SOCKS - 12" DIA.	EASTERLY SIDE OF DEVELOPMENT	
S14	COMPOST FILTER SOCKS - 12" DIA.	EASTERLY SIDE OF DEVELOPMENT	
S15	COMPOST FILTER SOCKS - 12" DIA.	EASTERLY SIDE OF DEVELOPMENT	J-SUMP
S16	COMPOST FILTER SOCKS - 24" DIA.	AT DISHCARGE POINT "EX FES"	J-SUMP
S16A	COMPOST FILTER SOCKS - 24" DIA.	AT DISHCARGE POINT "EX FES"	J-SUMP
S17	COMPOST FILTER SOCKS - 12" DIA.	EASTERLY SIDE OF DEVELOPMENT	
S17A	COMPOST FILTER SOCKS - 12" DIA.	EASTERLY SIDE OF DEVELOPMENT	J-SUMP
S18	COMPOST FILTER SOCKS - 12" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	
S19	COMPOST FILTER SOCKS - 18" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	J-SUMP
S20	COMPOST FILTER SOCKS - 18" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	J-SUMP
S21	COMPOST FILTER SOCKS - 18" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	J-SUMP
S22	COMPOST FILTER SOCKS - 18" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	J-SUMP
S23	COMPOST FILTER SOCKS - 24" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	J-SUMP
S24	COMPOST FILTER SOCKS - 18" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	
S25	COMPOST FILTER SOCKS - 12" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	
S26	COMPOST FILTER SOCKS - 12" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	
S27	COMPOST FILTER SOCKS - 12" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	
S28	COMPOST FILTER SOCKS - 12" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	
S29	COMPOST FILTER SOCKS - 12" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	
S30	COMPOST FILTER SOCKS - 12" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	
S31	COMPOST FILTER SOCKS - 12" DIA.	SOUTHERLY SIDE OF DEVELOPMENT	
S32	COMPOST FILTER SOCKS - 12" DIA.	WESTERLY SIDE OF DEVELOPMENT	J-SUMP
S33	COMPOST FILTER SOCKS - 12" DIA.	WESTERLY SIDE OF DEVELOPMENT	J-SUMP
S34	COMPOST FILTER SOCKS - 12" DIA.	WESTERLY SIDE OF DEVELOPMENT	J-SUMP
S35	COMPOST FILTER SOCKS - 12" DIA.	WESTERLY SIDE OF DEVELOPMENT	J-SUMP
S36	COMPOST FILTER SOCKS - 12" DIA.	WESTERLY SIDE OF DEVELOPMENT	J-SUMP

REV.	DATE	COMMENT	BY
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RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 078556
NOT FOR CONSTRUCTION

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LANCASTER, PA
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LANCASTER, PA 17601-3168
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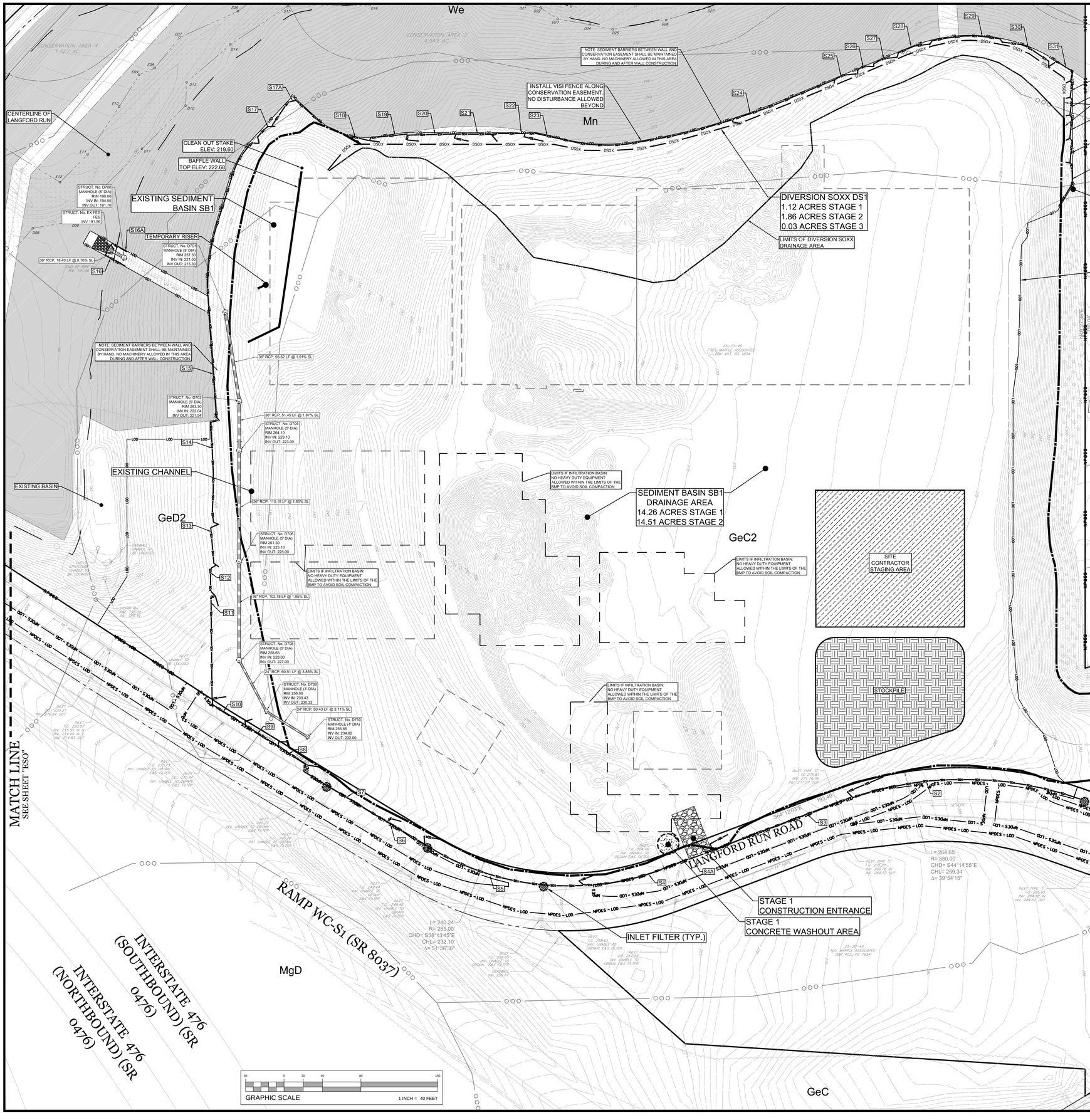
PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: EROSION AND SEDIMENT CONTROL OVERALL PLAN

SCALE: (H) AS NOTED (V) -
DATE: 2017 - 12 - 22
SHEET: ESO
REV. No: 0



EXISTING SENSITIVE RESOURCE LEGEND

- EXISTING CONSERVATION EASEMENT
- WETLANDS
- FHAZ — LIMITS OF SPECIAL FLOOD HAZARD AREA PER FIRM MAPS 42045C0101F & 42045C0102F

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SEQUENCE OF CONSTRUCTION

NOTES:

- NO DEMOLITION IS ALLOWED UNTIL AFTER THE NPDES PERMIT HAS BEEN ISSUED AND THE PRECONSTRUCTION MEETING HELD AT MARPLE TOWNSHIP.
- ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE.
- AN ON-SITE PRE-CONSTRUCTION MEETING IS REQUIRED TO OCCUR NO LESS THAN 7-DAYS PRIOR TO ANY EARTH DISTURBANCE UNLESS NOTIFIED OTHERWISE BY THE DELAWARE COUNTY CONSERVATION DISTRICT. PERMITTEES, CO-PERMITTEES, OPERATORS, ALL APPROPRIATE MUNICIPAL OFFICIALS, REPRESENTATIVES FROM THE DELAWARE COUNTY CONSERVATION DISTRICT AND LICENSED PROFESSIONALS OR DESIGNEES RESPONSIBLE FOR THE EARTH DISTURBANCE ACTIVITY, INCLUDING IMPLEMENTATION OF E&S AND PCSM PLANS AND CRITICAL STAGES OF IMPLEMENTATION OF THE APPROVED PCSM PLAN, SHALL ATTEND A PRE-CONSTRUCTION MEETING.
- CESSATION OF ACTIVITY LONGER THAN 4 DAYS REQUIRES TEMPORARY STABILIZATION.

STAGE 1

1. INSTALL STAGE 1 CONSTRUCTION ENTRANCE.
2. INSTALL SEDIMENT BARRIERS AND CONCRETE WASHOUT. SEDIMENT BARRIERS BETWEEN WALL AND CONSERVATION EASEMENT SHALL BE MAINTAINED BY HAND. NO MACHINERY ALLOWED IN THIS AREA DURING AND AFTER WALL CONSTRUCTION.
3. INSTALL ORANGE "VISI" FENCE ALONG ENTIRE LIMIT OF DISTURBANCE, AND CONSERVATION EASEMENT. NO DISTURBANCE ALLOWED BEYOND FENCE.
4. INSTALL CONVEYANCE SYSTEM BETWEEN STRUCTURES "EX FES" TO "D700", INCLUDING OUTLET PROTECTION. PERMANENTLY STABILIZE ALL DISTURBED AREAS.
5. INSTALL LANGFORD RUN ROAD BYPASS CONVEYANCE SYSTEM BETWEEN STRUCTURES "D701" TO "D710". TEMPORARILY STABILIZE ALL DISTURBED AREAS.
6. UPGRADE EXISTING SEDIMENT BASIN "SB1". SEAL ALL ORIFICES AND WEIR AT EXISTING RISER AND INSTALL NEW TEMPORARY RISER. REPLACE EXISTING BAFFLE PER CURRENT DESIGN AND INSTALL CLEANOUT STAKE. TEMPORARILY STABILIZE ALL DISTURBED AREAS.
7. INSTALL DIVERSION SOXX "DS1".
8. SETUP STAGING AREA.
9. UPON THE INSTALLATION OR STABILIZATION OF ALL PERIMETER SEDIMENT CONTROL BMPS AND AT LEAST 3 DAYS PRIOR TO PROCEEDING WITH THE BULK EARTH DISTURBANCE ACTIVITIES, THE PERMITTEE OR CO-PERMITTEE SHALL PROVIDE NOTIFICATION TO THE DEPARTMENT OR DELAWARE COUNTY CONSERVATION DISTRICT.

E&S CONTROL LEGEND

- TEMPORARY CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET
- CONTRUCTION TRAILERS / STAGING AREA
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- NPDES — NPDES BOUNDARY
- NPDES - LOD — COMBINED NPDES/LOD BOUNDARY & LOCATION OF VISI-FENCE IN NON ROADWAY AREAS
- SOILS BOUNDARY
- SEDIMENT BASIN RISER
- STORM SEWER PIPE
- OUTLET PROTECTION

GRADING-UTILITY LEGEND

EXISTING ITEMS	PROPOSED ITEMS	
		RIP-RAP
		DRAINAGE FLOW
327.54		SPOT GRADE
		STORM STRUCTURE
		HYDRANT
		VALVE
		REDUCER
C — C		U/G CABLE CONDUIT
E — E		U/G ELECTRICAL CONDUIT
E/T		U/G ELECTRICAL & TELEPHONE CONDUIT
E/T/C		U/G ELECTRICAL, TELEPHONE & CABLE CONDUIT
G — G		U/G GAS LINE
OH		OVER HEAD WIRES
FM		SANITARY SEWER FORCE MAIN
S — S		SANITARY SEWER LATERAL
		SANITARY SEWER MAIN
D — D		STORM SEWER LATERAL
T — T		STORM SEWER MAIN
W — W		U/G TELEPHONE CONDUIT
		WATER MAIN
		CONTOUR
FO		U/G FIBER OPTIC CONDUIT

SOILS LEGEND

Ch:	CHEWACLA SILT LOAM, HYD GROUP B / D
GeC2	GLENELG CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPE, HYD GROUP B
GeD:	GLENELG CHANNERY SILT LOAM, 15 TO 25 PERCENT SLOPE, HYD GROUP B
GeD2:	GLENELG CHANNERY SILT LOAM, 15 TO 25 PERCENT SLOPE, MODERATRELY ERODED, HYD GROUP B
MgD:	MANOR LOAM, 15 TO 25 PERCENT SLOPE, HYD GROUP B
Me:	MADE LAND, SCHIST AND GNEISS MATERIALS, HYD GROUP C
Mn:	MELVIN SILT LOAM, HYD GROUP B / D
We:	WEHADKEE SILT LOAM, HYD GROUP B / D

SEE SHEETS "NE" AND/OR "NP" FOR SOILS LIMITATIONS

REV.	DATE	COMMENT	BY

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 078556

NOT FOR CONSTRUCTION

PROJECT No: 140012
DRAWN BY: B. WAGENGAST / M. RIVEZZI
CHECKED BY: R. WHITMORE
CAD ID. #: 03-06_ES_140012

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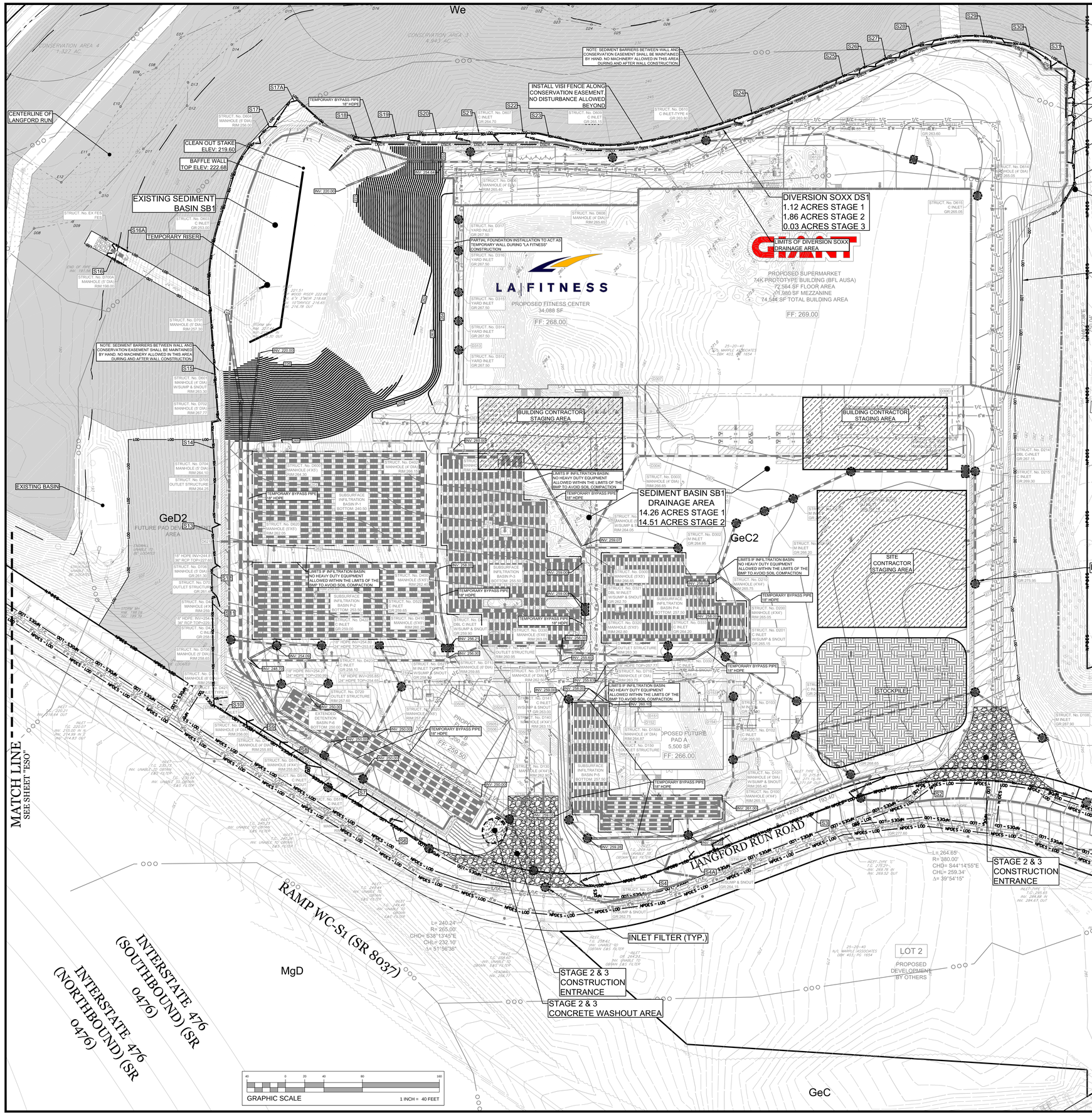
PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: EROSION AND SEDIMENT CONTROL PLAN
STAGE 1

SCALE: (H) AS NOTED
(V)

DATE: 2017 - 12 - 22

SHEET: ES1
REV. No: 0



EXISTING SENSITIVE RESOURCE LEGEND

- EXISTING CONSERVATION EASEMENT
- WETLANDS
- FHAZ — LIMITS OF SPECIAL FLOOD HAZARD AREA PER FIRM MAPS 42045C0101F & 42045C0102F

DATUM

VERTICAL DATUM BASED ON NAVD 1988.

KNOW WHAT'S BELOW.
CALL BEFORE YOU DIG

STATE of PENNSYLVANIA ONE CALL
DIAL 811 or 1-800-242-1776
WWW.PA1CALL.ORG

E&S CONTROL LEGEND

- TEMPORARY CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET
- CONTRUCTION TRAILERS / STAGING AREA
- STOCKPILE
- STONE AND CONC. BLOCK INLET PROTECTION
- FILTER BAG INLET PROTECTION
- CONCRETE WASHOUT AREA
- SOX — COMPOST FILTER SOCK
- LOD — LIMIT OF DISTURBANCE & LOCATION OF VISI-FENCE
- NPDES — NPDES BOUNDARY
- NPDES - LOD — COMBINED NPDES/LOD BOUNDARY & LOCATION OF VISI-FENCE IN NON ROADWAY AREAS
- SOILS BOUNDARY
- SEDIMENT BASIN RISER
- STORM SEWER PIPE
- OUTLET PROTECTION

SEQUENCE OF CONSTRUCTION

STAGE 2

1. ENSURE SEDIMENT BASIN "SB1" REMAINS OPERATIONAL FOR THE ENTIRE DURATION OF STAGE 2.
2. INSTALL STAGE 2 CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT.
3. INSTALL SEDIMENT BARRIER S4A. SEDIMENT BARRIERS BETWEEN WALL AND CONSERVATION EASEMENT SHALL BE MAINTAINED BY HAND. NO MACHINERY ALLOWED IN THIS AREA DURING AND AFTER WALL CONSTRUCTION.
4. STRIP TOPSOIL WITHIN LIMIT OF DISTURBANCE AND PLACE IN STOCKPILE.
5. INITIATE NECESSARY SITE EARTHWORK TO ACHIEVE THE GRADES INDICATED ON THE STAGE 2 DRAWINGS. ENSURE MAINTENANCE OF SEDIMENT CONTROL FACILITIES.
6. CONSTRUCT RETAINING WALLS PER E&S STAGE 2 PLANS. ALONG THE SOUTHERN PORTION OF THE CONSERVATION EASEMENT, BEGIN WALL CONSTRUCTION FROM WEST TO EAST TO ALLOW THE DOWNSTREAM PORTION OF THE DIVERSION SOXX TO REMAIN OPERATIONAL. ONLY REMOVE THE PORTION OF DIVERSION SOXX NEEDED TO CONSTRUCT THE WALL EACH DAY.
7. INSTALL STAGE 2 STORM SEWER CONVEYANCE FACILITIES INCLUDING SUBSURFACE BASIN TEMPORARY BYPASS CONVEYANCE SYSTEM TO REDIRECT STORMWATER TO SEDIMENT BASIN "SB1". INSTALL INLET FILTERS AS STRUCTURES ARE COMPLETED. WORK SHALL COMMENCE FROM DOWNSTREAM TO UPSTREAM. TEMPORARILY BLOCK OPENINGS TO SUBSURFACE BASINS. NO CONNECTION ALLOWED TO SUBSURFACE BASINS UNTIL UPSTREAM AREAS ARE PERMANENTLY STABILIZED.
8. CRITICAL STAGE REQUIRES ENGINEERING OVERSIGHT (SEE PCSM PLAN): CONSTRUCT SUBSURFACE INFILTRATION BASINS "P1", "P2", "P3", "P4" AND "P5" AND SUBSURFACE EXTENDED DETENTION BASIN "P6" INCLUDING OUTFALL PIPES. DO NOT CONNECT TO UPSTREAM CONVEYANCE SYSTEM AT THIS TIME.
9. INSTALL OTHER STAGE 2 UNDERGROUND UTILITIES.
10. PROVIDE TEMPORARY AND/OR PERMANENT STABILIZATION AS REQUIRED: PRIOR TO INITIATION OF BUILDING CONSTRUCTION, SUFFICIENT STABILIZATION OF SURROUNDING AREAS AND ADEQUATE STABLE STAGING AND PARKING MUST BE PROVIDED.
11. INITIATE STAGE 2 BUILDING CONSTRUCTION.
12. CONTINUE WITH THE BALANCE OF THE EARTHWORK AND INSTALL STAGE 2 CURBING, SIDEWALKS, ETC. MAINTAIN ALL E&S BMPS, INCLUDING SEDIMENT BASIN.
13. INSTALL STONE SUBBASE COURSE FOR ALL STAGE 2 PAVEMENT AND CONCRETE AREAS.
14. INSTALL PERMANENT VEGETATION INCLUDING LANDSCAPING AND GRASSED AREAS WITHIN THE CONSTRUCTION LIMITS OF STAGE 2.
15. PERMANENTLY STABILIZE DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS OF STAGE 2. PERMANENT STABILIZATION IS DEFINED AS 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.
16. INSTALL BINDER COURSE FOR ALL PAVEMENT AND CONCRETE AREAS.
17. CRITICAL STAGE REQUIRES ENGINEERING OVERSIGHT (SEE PCSM PLAN): CONNECT SUBSURFACE BASINS "P2", "P3", "P4", "P5" AND "P6" TO UPSTREAM CONVEYANCE SYSTEM. CAP ALL TEMPORARY BYPASS PIPES WITH WATER TIGHT SEALS.

GRADING-UTILITY LEGEND

EXISTING ITEMS	PROPOSED ITEMS	
		RIP-RAP
		DRAINAGE FLOW
37.54		SPOT GRADE
		STORM STRUCTURE
		HYDRANT
		VALVE
		REDUCER
C	C	UIG CABLE CONDUIT
E	E	UIG ELECTRICAL CONDUIT
E/T	E/T	UIG ELECTRICAL & TELEPHONE CONDUIT
E/T/C	E/T/C	UIG ELECTRICAL, TELEPHONE & CABLE CONDUIT
G	G	UIG GAS LINE
OH	OH	OVER HEAD WIRES
FM	FM	SANITARY SEWER FORCE MAIN
S	S	SANITARY SEWER LATERAL
D	D	SANITARY SEWER MAIN
D	D	STORM SEWER LATERAL
D	D	STORM SEWER MAIN
T	T	UIG TELEPHONE CONDUIT
W	W	WATER MAIN
777	100	CONTOUR
FO	FO	UIG FIBER OPTIC CONDUIT

SOILS LEGEND

Ch:	CHEWACLA SILT LOAM, HYD GROUP B / D
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We:	WEHADKEE SILT LOAM, HYD GROUP B / D

SEE SHEETS "NE" AND/OR "NP" FOR SOILS LIMITATIONS

REV.	DATE	COMMENT	BY

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 078556

NOT FOR CONSTRUCTION

PROJECT No: 140012
DRAWN BY: B. NAGGAGAT / M. RIVEZZI
CHECKED BY: R. WHITMORE
CAD I.D. #: 03-06_ES_140012

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PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

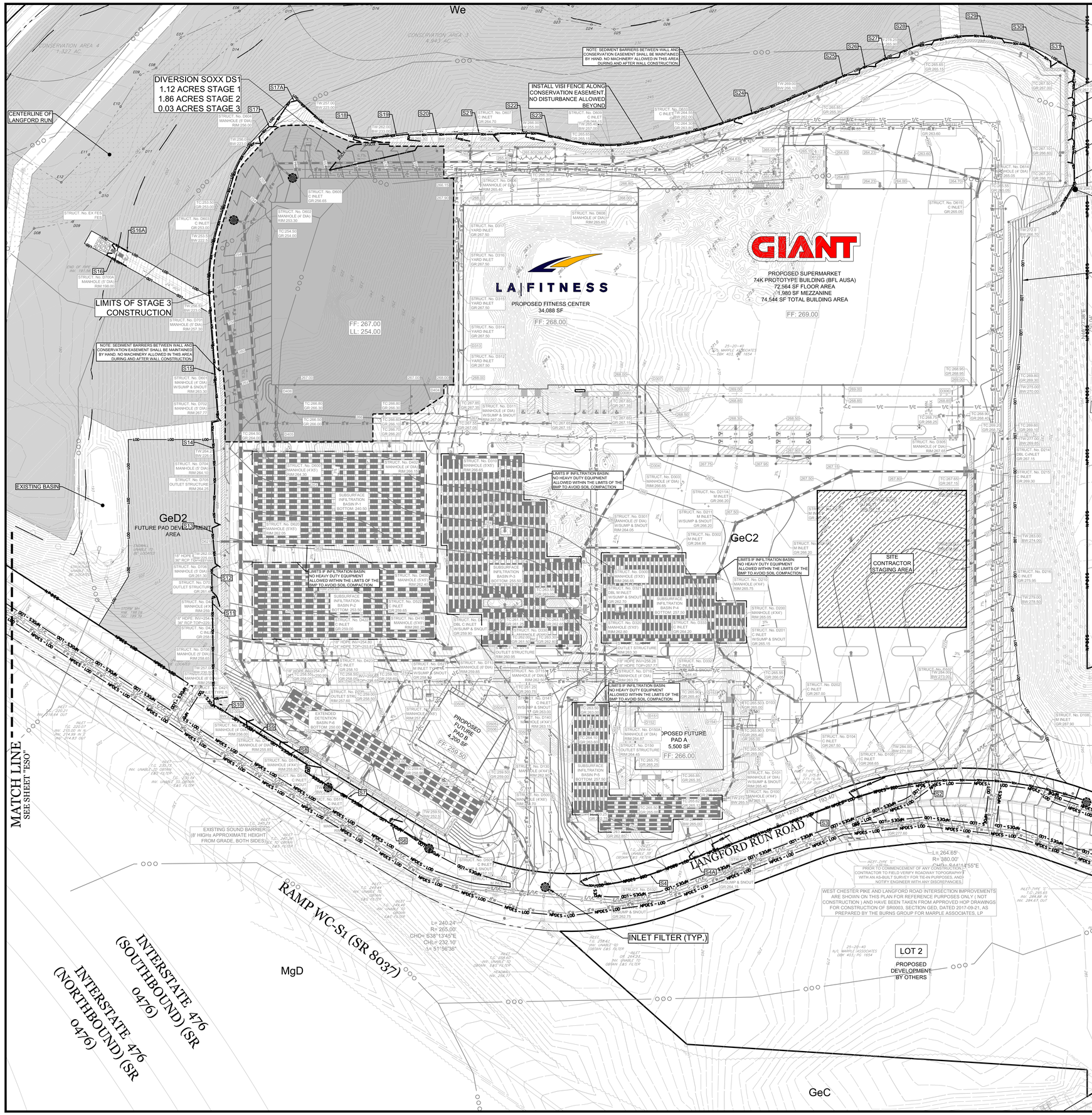
TITLE: EROSION AND SEDIMENT CONTROL PLAN
STAGE 2

SCALE: (H) AS NOTED
(V) -

DATE: 2017 - 12 - 22

SHEET: ES2

REV. No: 0



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- EXISTING CONSERVATION EASEMENT
- WETLANDS
- FHAZ — LIMITS OF SPECIAL FLOOD HAZARD AREA PER FIRM MAPS 42045C0101F & 42045C0102F

DATUM

VERTICAL DATUM BASED ON NAVD 1988.

KNOW WHAT'S BELOW.
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E&S CONTROL LEGEND

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SEQUENCE OF CONSTRUCTION

STAGE 3

1. ALL AREAS UPSTREAM OF THE E&S STAGE 3 LIMITS OF CONSTRUCTION SHALL BE PERMANENTLY STABILIZED BEFORE PROCEEDING WITH THIS STAGE.
2. NOTIFY THE DELAWARE COUNTY CONSERVATION DISTRICT PRIOR TO THE REMOVAL OF THE SEDIMENT BASIN. THE DISTRICT MAY REQUIRE A SITE INSPECTION PRIOR TO THE REMOVAL OF SUCH FACILITY.
3. DECOMMISSION SEDIMENT BASIN "SB1". COMMENCE BY DEWATERING THE BASIN AND THE REMOVAL AND DISPOSAL OF ALL SEDIMENT IN ACCORDANCE WITH THE E&S REQUIREMENTS. REMOVE TEMPORARY SEDIMENT BASIN FEATURES SUCH AS THE RISER, BAFFLE WALL AND CLEANOUT. ENSURE ALL REMAINING E&S BMPS STAY IN PLACE.
4. CONTINUE WITH THE REMAINING EARTHWORK AND CONSTRUCT REMAINING RETAINING WALL ALONG THE SOUTHERN PORTION OF THE CONSERVATION EASEMENT. BEGIN WALL CONSTRUCTION FROM WEST TO EAST TO ALLOW THE DOWNSTREAM PORTION OF THE DIVERSION SOXX TO REMAIN OPERATIONAL. ONLY REMOVE THE PORTION OF DIVERSION SOXX NEEDED TO CONSTRUCT THE WALL EACH DAY.
5. SEDIMENT BARRIERS BETWEEN WALL AND CONSERVATION EASEMENT SHALL BE MAINTAINED BY HAND. NO MACHINERY ALLOWED IN THIS AREA DURING AND AFTER WALL CONSTRUCTION.
6. INSTALL CONVEYANCE SYSTEM PER E&S STAGE 3 PLANS. TEMPORARILY BLOCK OPENINGS TO SUBSURFACE BASINS "P1". NO CONNECTION ALLOWED TO SUBSURFACE BASIN UNTIL UPSTREAM AREAS ARE PERMANENTLY STABILIZED.
7. INSTALL REMAINING UNDERGROUND UTILITIES.
8. INSTALL REMAINING CURBING, SIDEWALKS, ETC.
9. INITIATE STAGE 3 BUILDING CONSTRUCTION.
10. INSTALL PERMANENT VEGETATION INCLUDING ALL REMAINING LANDSCAPING AND GRASSED AREAS.
11. PERMANENTLY STABILIZE ALL DISTURBED AREAS. PERMANENT STABILIZATION IS DEFINED AS 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.
12. INSTALL BINDER COURSE FOR ALL PAVEMENT AND CONCRETE AREAS.
13. CRITICAL STAGE REQUIRES ENGINEERING OVERSIGHT (SEE PCSM PLAN): CONNECT SUBSURFACE BASIN "P1" TO UPSTREAM CONVEYANCE SYSTEM. CAP ALL TEMPORARY BYPASS PIPES WITH WATER TIGHT SEALS
14. UPON SITE STABILIZATION (UNIFORM COVERAGE OR DENSITY OF 70% ACROSS ALL DISTURBED AREAS) AND AUTHORIZATION FROM THE DELAWARE COUNTY CONSERVATION DISTRICT, REMOVE ALL REMAINING EROSION AND SEDIMENT POLLUTION CONTROL BMPS (SEDIMENT BARRIER, INLET PROTECTION, ETC.). ANY AREA DISTURBED DURING THE REMOVAL OF THE EROSION AND SEDIMENT POLLUTION CONTROL BMPS MUST BE STABILIZED IMMEDIATELY. UPON COMPLETION OF ALL OTHER SITE CONSTRUCTION ACTIVITIES, INSTALL FINAL WEARING COURSE, SIGNAGE AND STRIPING, DEMOBILIZE.
15. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES, REMOVAL OF ALL TEMPORARY BMPS AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OPERATORS SHALL CONTACT THE COUNTY CONSERVATION DISTRICT FOR A FINAL INSPECTION.
16. SUBMIT NOTICE OF TERMINATION (NOT) TO DELAWARE COUNTY CONSERVATION DISTRICT.

GRADING-UTILITY LEGEND

EXISTING ITEMS	PROPOSED ITEMS	
		RIP-RAP
		DRAINAGE FLOW
37.54		SPOT GRADE
		STORM STRUCTURE
		HYDRANT
		VALVE
		REDUCER
C	C	UIG CABLE CONDUIT
E	E	UIG ELECTRICAL CONDUIT
E/T	E/T	UIG ELECTRICAL & TELEPHONE CONDUIT
E/T/C	E/T/C	UIG ELECTRICAL, TELEPHONE & CABLE CONDUIT
G	G	UIG GAS LINE
OH	OH	OVER HEAD WIRES
FM	FM	SANITARY SEWER FORCE MAIN
S	S	SANITARY SEWER LATERAL
		SANITARY SEWER MAIN
D	D	STORM SEWER LATERAL
		STORM SEWER MAIN
T	T	UIG TELEPHONE CONDUIT
W	W	WATER MAIN
XX		CONTOUR
FO	FO	UIG FIBER OPTIC CONDUIT

SOILS LEGEND

Ch:	CHEWACLA SILT LOAM, HYD GROUP B / D
GeC2	GLENELG CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPE, HYD GROUP B
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SEE SHEETS "NE" AND/OR "NP" FOR SOILS LIMITATIONS

REV.	DATE	COMMENT	BY

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 078556
NOT FOR CONSTRUCTION

PROJECT No: 140112
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CHECKED BY: R. WHITMORE
CAD I.D. #: 03-06_ES_140012

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PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: EROSION AND SEDIMENT CONTROL PLAN
STAGE 3

SCALE: (H) AS NOTED (V)
DATE: 2017 - 12 - 22
SHEET: ES3
REV. No: 0

STANDARD EROSION & SEDIMENT CONTROL PLAN NOTES

1. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.
2. THE OPERATOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.
3. UNTIL THE SITE ACHIEVES FINAL STABILIZATION, THE OPERATOR SHALL ASSURE THAT THE BEST MANAGEMENT PRACTICES ARE IMPLEMENTED, OPERATED, AND MAINTAINED PROPERLY AND COMPLETELY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL BEST MANAGEMENT PRACTICE FACILITIES. THE OPERATOR SHALL MAINTAIN AND MAKE AVAILABLE TO LOCAL CONSERVATION DISTRICT COMPLETE, WRITTEN INSPECTION LOGS OF ALL THOSE INSPECTIONS. ALL MAINTENANCE WORK, INCLUDING CLEANING, REPAIR, REPLACEMENT, REGRADING, AND RESTABILIZATION SHALL BE PERFORMED IMMEDIATELY.
4. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.
5. BEFORE INITIATING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E&S CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE LOCAL CONSERVATION DISTRICT.
6. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE LOCAL CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.
7. 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.
8. THE OPERATOR 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.
9. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
10. EROSION AND SEDIMENT BMP'S MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMP'S.
11. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMP CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE BMP'S MUST BE STABILIZED IMMEDIATELY.
12. AT LEAST 7 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES, THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION AND SEDIMENT CONTROL PLAN PREPARER, AND THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE MEETING. ALSO, AT LEAST 3 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR BURIED UTILITIES LOCATIONS.
13. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE.
14. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.
15. 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.

SEDIMENT BASINS
16. APPROVAL OF THE USE OF SKIMMER(S) DOES NOT APPROVE USE OF ANY SKIMMER(S) IN VIOLATION OF ANY PATENT, PATENT RIGHTS, AND/OR PATENT LAW.
17. BAFFLES MUST BE INSTALLED TO ALLOW BASIN MAINTENANCE AND CLEAN OUT.
18. UPON INSTALLATION OF THE TEMPORARY SEDIMENT BASIN RISER(S), AN IMMEDIATE INSPECTION OF THE RISER(S) SHALL BE CONDUCTED BY A QUALIFIED SITE REPRESENTATIVE AND LOCAL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING THAT THE RISER IS SEALED.
19. SEDIMENT BASINS MUST BE PROTECTED FROM UNAUTHORIZED ACTS OF THIRD PARTIES.

OTHER BMPS (SPECIFY)
20. SEDIMENT MUST BE REMOVED FROM STORM WATER INLET PROTECTION AFTER EACH RUNOFF EVENT.
21. AT STREAM CROSSINGS, 50' BUFFER AREAS SHOULD BE MAINTAINED. ON BUFFERS, CLEARING, SOD DISTURBANCES, EXCAVATION, AND EQUIPMENT TRAFFIC SHOULD BE MINIMIZED. ACTIVITIES SUCH AS STACKING LOGS, BURNING CLEARED BRUSH, DISCHARGING RAINWATER FROM TRENCHES, WELDING PIPE SECTIONS, REFUELING AND MAINTAINING EQUIPMENT SHOULD BE ACCOMPLISHED OUTSIDE OF BUFFERS.

TEMPORARY STABILIZATION & PERMANENT STABILIZATION
22. HAY OR STRAW MULCH MUST BE APPLIED AT 3.0 TONS PER ACRE.
23. MULCH WITH MULCH CONTROL NETTING OR EROSION CONTROL BLANKETS MUST BE INSTALLED ON ALL SLOPES 3:1 AND STEEPER.
24. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT CHOPPED OR FINELY BROKEN.
25. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMP'S MUST BE MAINTAINED PROPERLY. 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, REGARDING, RESEEDING, REMULCHING, AND RENETTING, MUST BE PERFORMED IMMEDIATELY, IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
26. 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.
27. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTE IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET DEQ., AND 287.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE.

28. THE NPDES BOUNDARY IS EQUAL TO THE LIMITS OF DISTURBANCE FOR THE SITE, AND ANY OFF-SITE AREAS WITHIN THE LIMITS OF DISTURBANCE THAT ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL OFF-SITE FACILITIES SUCH AS UTILITIES AND ROADWAY IMPROVEMENTS.
29. THE PROJECT'S RECEIVING WATERCOURSE IS LANGFORD RUN, AND THE CHAPTER 93 CLASSIFICATION IS WWF-MF.

UTILITY LINE TRENCH EXCAVATION NOTES

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 DAY.
2. WORK CREWS AND EQUIPMENT FOR TRENCHING, PLACEMENT OF PIPE, PLUG CONSTRUCTION AND BACKFILLING WILL BE SELF CONTAINED AND SEPARATE FROM CLEARING AND GRUBBING AND SITE RESTORATION AND STABILIZATION OPERATIONS.
3. ALL SOIL EXCAVATED FROM THE TRENCH WILL BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
4. LIMIT DAILY TRENCH EXCAVATION TO THE LENGTH OF PIPE PLACEMENT, PLUG INSTALLATION AND BACKFILLING THAT CAN BE COMPLETED THE SAME DAY.
5. WATER WHICH ACCUMULATES IN THE OPEN TRENCH WILL BE COMPLETELY REMOVED BY PUMPING BEFORE PIPE PLACEMENT AND / OR BACKFILLING BEGINS. WATER REMOVED FROM THE TRENCH SHALL BE PUMPED THROUGH A FILTRATION DEVICE.
6. ON THE DAY FOLLOWING PIPE PLACEMENT AND TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS AND IMMEDIATELY STABILIZED.
7. SOILS EXCAVATED FROM EXISTING SURFACE LAYER SHOULD BE STOCKPILED SEPARATELY AND RETURNED AS FINAL SURFACE LAYER FOLLOWING TRENCH BACKFILLING.

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 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 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 SHALL TAKE IMMEDIATE ACTION TO RESTORE THE BMPS OR PROVIDE AN ALTERNATIVE METHOD OF TREATMENT. SUCH RESTORED BMPS OR ALTERNATIVE TREATMENT SHALL BE AT LEAST AS EFFECTIVE AS THE ORIGINAL BMPS.

TERMINATION OF COVERAGE

NOT: UPON PERMANENT STABILIZATION OF EARTH DISTURBANCE ACTIVITIES ASSOCIATED WITH CONSTRUCTION ACTIVITY THAT ARE AUTHORIZED BY THIS PERMIT AND WHEN BMPS IDENTIFIED IN THE PCSM PLAN HAVE BEEN PROPERLY INSTALLED, THE PERMITTEE AND/OR CO_PERMITTEE OF THE FACILITY MUST SUBMIT A NOT FORM THAT IS SIGNED IN ACCORDANCE WITH PART B, SECTION 1.C, SIGNATORY REQUIREMENTS, OF THIS PERMIT. ALL LETTERS CERTIFYING DISCHARGE TERMINATION ARE TO BE SENT TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT. THE NOT MUST CONTAIN THE FOLLOWING INFORMATION: FACILITY NAME, ADDRESS, AND LOCATION, OPERATOR NAME AND ADDRESS, PERMIT NUMBER, IDENTIFICATION AND PROOF OF ACKNOWLEDGMENT FROM THE PERSON(S) WHO WILL BE RESPONSIBLE FOR OPERATION AND MAINTENANCE OF THE PCSM BMPS IN ACCORDANCE WITH THE APPROVED PCSM PLAN, AND THE REASON FOR PERMIT TERMINATION. UNTIL THE PERMITTEE HAS RECEIVED WRITTEN ACKNOWLEDGEMENT OF THE NOT, THE PERMITTEE WILL REMAIN RESPONSIBLE FOR OPERATING AND MAINTAINING ALL E&S BMPS AND PCSM BMPS ON THE PROJECT SITE AND WILL BE RESPONSIBLE FOR VIOLATIONS OCCURRING ON THE PROJECT SITE.

COMPLETION CERTIFICATE AND FINAL PLANS

WITHIN 30 DAYS AFTER THE COMPLETION OF EARTH DISTURBANCE ACTIVITIES AUTHORIZED BY THIS PERMIT, INCLUDING THE PERMANENT STABILIZATION OF THE SITE AND PROPER INSTALLATION OF PCSM BMPS IN ACCORDANCE WITH THE APPROVED PCSM PLAN, OR UPON SUBMISSION OF THE NOT IF SOONER, THE PERMITTEE SHALL FILE WITH THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT A STATEMENT SIGNED BY A LICENSED PROFESSIONAL AND BY THE PERMITTEE CERTIFYING THAT WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THIS PERMIT AND THE APPROVED E&S AND PCSM PLANS.

MINIMIZE EXTENT AND DURATION OF EARTH DISTURBANCE

THE FOLLOWING PLAN SHALL BE IMPLEMENTED THROUGH CONSTRUCTION TO MINIMIZE ACCELERATED EROSION AND SEDIMENTATION DURING EARTH DISTURBANCE ACTIVITIES BY MINIMIZING THE AMOUNT OF EXISTING VEGETATIVE COVER TO BE REMOVED, AND BY PROVIDING TEMPORARY AND PERMANENT STABILIZATION MEASURES ON DISTURBED AREAS AS SOON AS PRACTICABLE. THE PRIMARY CONTROL FOR CAPTURING SEDIMENT BEFORE LEAVING THE SITE WILL BE SILT FENCE DURING INITIAL CONSTRUCTION STAGES. THE AMOUNT OF DISTURBED AREA AND THE DURATION OF EXPOSURE SHALL BE KEPT TO A PRACTICAL MINIMUM AND THE PERMANENT VEGETATION AND STORMWATER CONTROL SYSTEMS WILL BE INSTALLED AS SOON AS POSSIBLE TO PREVENT EROSION AND THEREFORE MINIMIZE THE AMOUNT OF SEDIMENT TO BE CONTROLLED.

CONSTRUCTION WILL BEGIN (ONLY AFTER THE INITIAL EROSION AND SEDIMENT CONTROLS HAVE BEEN PLACED) BY CONSTRUCTING THE SEDIMENT TRAP(S) WHICH WILL LIMIT THE AMOUNT OF SEDIMENT LADEN RUNOFF THAT FLOWS TO THE PERIMETER CONTROLS UNTIL THE STORM SYSTEM, AND INLET PROTECTION CAN BE PLACED.

MAXIMIZE PROTECTION OF EXISTING DRAINAGE FEATURES AND VEGETATION

EXISTING DRAINAGE FEATURES AND VEGETATION WILL BE PROTECTED DURING CONSTRUCTION BY ENSURING THE EROSIONS AND SEDIMENT CONTROL BMPS REMAIN IN PLACE AND OPERATIONAL FOR THE ENTIRE DURATION OF THE CONSTRUCTION. A COMBINATION OF SILT FENCING AND DIVERSION SOXXS WILL PREVENT SILT LADEN RUNOFF FROM LEAVING THE SITE AND /OR REDIRECT IT TO TEMPORARY SEDIMENT TRAPS. FROM THE SEDIMENT TRAPS, THE RUNOFF WILL BE PIPED TO THE EXISTING UNDERGROUND BASIN, BEFORE IT IS CONVEYED TO THE ROADWAY CONVEYANCE SYSTEM. IN ADDITION, TREE PROTECTION FENCING WILL BE INSTALLED AROUND EXISTING TREES (SEE PCSM PLAN SET SHEET NO. 9 "LA").

MINIMIZE SOIL COMPACTION

SOIL COMPACTION WILL BE MINIMIZED DURING CONSTRUCTION BY KEEPING THE CONSTRUCTION ACTIVITIES WITHIN THE LIMITS OF DISTURBANCE. ALSO, AREAS THAT WILL BE UTILIZED AS INFILTRATION BEDS AND POROUS PAVEMENT, SHALL BE GRADED OUT UTILIZING METHOD DESCRIBED IN THE "CONSTRUCTION GUIDELINES AND SEQUENCING" FOR EACH BMP. SEE PCSM PLAN SET SHEET NO. 5 "DS.2" AND NO. 6 "DS.3".

OTHER MEASURES OR CONTROLS THAT PREVENT OR MINIMIZE GENERATION OF INCREASED STORMWATER RUNOFF

BY MINIMIZING THE AMOUNT OF EXISTING VEGETATIVE COVER TO BE REMOVED, AND BY PROVIDING TEMPORARY AND PERMANENT STABILIZATION MEASURES ON DISTURBED AREAS AS SOON AS PRACTICABLE, RUNOFF WILL BE MINIMIZED DURING CONSTRUCTION. ALSO, THE TEMPORARY SEDIMENT TRAPS WILL EXTEND DEWATERING TIME TO ALLOW THE SEDIMENT LADEN WATERS TO SETTLE, RESULTING ALSO IN REDUCED PEAK FLOWS.

THERMAL IMPACTS DURING CONSTRUCTION AND MITIGATION

BY MINIMIZING THE AMOUNT OF EXISTING VEGETATIVE COVER TO BE REMOVED, AND BY PROVIDING TEMPORARY AND PERMANENT STABILIZATION MEASURES ON DISTURBED AREAS AS SOON AS PRACTICABLE, RUNOFF WILL BE MINIMIZED DURING CONSTRUCTION, WHICH IN TURN WILL MINIMIZE THERMAL IMPACTS. ALSO THE TEMPORARY SEDIMENT TRAPS WILL OUTFALL TO THE EXISTING UNDERGROUND DETENTION BASIN, WHICH IS EQUIPPED WITH AN OUTLET STRUCTURE. THE EXTENDED DEWATERING TIME OF THE UNDERGROUND BASIN WILL FURTHER AID TO COOL DOWN THE RUNOFF BEFORE IT DISCHARGES TO THE ROADWAY CONVEYANCE SYSTEM..

CLEAN FILL NOTES

IF THE SITE WILL NEED TO IMPORT OR EXPORT MATERIAL FROM THE SITE, THE RESPONSIBILITY FOR PERFORMING ENVIRONMENTAL DUE DILIGENCE AND DETERMINATION OF CLEAN FILL WILL REST WITH THE CONTRACTOR.

CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, 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 OTHER 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).

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 THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".

ANY PERSON PLACING CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE 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 THE END OF THESE INSTRUCTIONS.

ENVIRONMENTAL DUE DILIGENCE: THE APPLICANT MUST PERFORM ENVIRONMENTAL DUE DILIGENCE TO DETERMINE IF THE FILL MATERIALS ASSOCIATED WITH THE PROJECT QUALIFY AS CLEAN FILL. ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS: 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 SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. 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 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 THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".

FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE DEPARTMENT'S MUNICIPAL OR RESIDUAL WASTE REGULATIONS BASED ON 25 PA. CODE CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE. THESE REGULATIONS ARE AVAILABLE ON-LINE AT WWW.PACODE.COM .

SUMMARY OF PROPOSED EROSION AND SEDIMENT POLLUTION CONTROL BMPS

SEVERAL TYPES OF EROSION AND SEDIMENT POLLUTION CONTROL BMPS WERE DESIGNED FOR THE PROJECT SITE. EACH ITEM IS IDENTIFIED AND DISCUSSED BELOW. (REFER TO THE SOIL EROSION AND SEDIMENT POLLUTION BMP MAINTENANCE PROGRAM FOR MAINTENANCE REQUIREMENTS FOR EACH BMP.)

1. ROCK CONSTRUCTION ENTRANCE: A DESIGNATED ENTRANCE FOR ALL CONSTRUCTION VEHICLES, ENTERING AND LEAVING THE PROJECT SITE, SHALL BE MAINTAINED TO ELIMINATE MUD AND DEBRIS FROM BEING TRACKED ONTO THE ADJACENT STREETS AND/OR HIGHWAY.
2. SEDIMENT BARRIERS: SEDIMENT BARRIERS ARE PROPOSED TO CONTROL RUN-OFF FROM SMALL DISTURBED AREAS, WHICH IS DISCHARGED TO STABLE AREAS.
3. SEEDING AND MULCHING: SEEDING AND MULCHING OF DISTURBED AREAS (AFTER THE GRADING IS COMPLETE) WILL HELP TO ESTABLISH NEW VEGETATION AND PROMOTE STABILIZATION OF THE DISTURBED SOILS.
4. INLET PROTECTION: PRIOR TO STABILIZATION, INLET FILTER BAGS AND/OR STONE AND CONCRETE BLOCK INLET PROTECTION WILL PROVIDE A TEMPORARY CONTROL MEASURE TO HELP PREVENT SEDIMENT AND DEBRIS FROM ENTERING THE STORM SEWER PIPES DURING CONSTRUCTION.
5. SEDIMENT BASIN: THESE TEMPORARY BMPS WILL DETAIN SEDIMENT LADEN RUNOFF AND ALLOW PARTICLES TO SETTLE OUT BETWEEN 2 AND 7 DAYS PRIOR TO BEING RELEASED. ACCUMULATED SEDIMENT IS PERIODICALLY REMOVED FROM THE BASIN AND SPREAD ACROSS STABLE AREAS OF THE SITE.
6. OUTLET PROTECTION: OUTLET PROTECTION IS PROPOSED AT PIPE OR CHANNEL OUTFALL LOCATIONS WHERE ANTICIPATED DISCHARGE VELOCITIES DO NOT EXCEED 14.5 FEET PER SECOND AND WHERE THE APRONS CAN BE INSTALLED ON A LEVEL GRADE.
7. CONCRETE WASHOUT: A SUITABLE WASHOUT FACILITY FOR THE CLEANING OF CHUTES, MIXERS AND HOPPERS OF CONCRETE DELIVERY VEHICLES.
8. DIVERSION SOXXS AND CHANNELS: TEMPORARY BMP TO DIVERT RUNOFF TO SEDIMENT TRAPS OR BASINS.

SOIL EROSION AND SEDIMENT POLLUTION BMP MAINTENANCE PROGRAM

UNTIL THE SITE IS STABILIZED, ALL TEMPORARY EROSION AND SEDIMENT POLLUTION CONTROL BMPS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT POLLUTION CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. RECORDS OF EACH INSPECTION, NOTES OF DEFICIENCIES, AND THE CORRECTIVE ACTIONS TAKEN MUST BE KEPT AT THE PROJECT SITE FOR REVIEW BY THE ENGINEER OF RECORD, APPLICABLE COUNTY CONSERVATION DISTRICT AND/OR PADEP (AS APPLICABLE).

1. CONTRACTOR IS RESPONSIBLE TO CONSTRUCT AND MAINTAIN ALL REQUIRED EROSION AND SEDIMENT POLLUTION CONTROL BMPS THROUGHOUT THE CONSTRUCTION PROCESS. THE CONTRACTOR IS ALSO RESPONSIBLE TO INSPECT AND EVALUATE THE EFFECTIVENESS OF THE EROSION AND SEDIMENT POLLUTION CONTROL BMPS AND IMPLEMENT ANY ADDITIONAL BMPS REQUIRED TO CONTROL UNFORESEEN PROBLEMS ON THE SITE.
2. OWNER/DEVELOPER IS RESPONSIBLE TO ENSURE THAT THE CONTRACTOR CONDUCTS HIS OPERATIONS AND MAINTENANCE ACCORDING TO THE APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN.
3. OWNER AND/OR CONTRACTOR SHALL ASSIGN ONE INDIVIDUAL TO BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT POLLUTION CONTROL BMPS THROUGHOUT THE CONSTRUCTION PROCESS.
4. THIS PLAN REPRESENTS THE MINIMUM LEVEL OF IMPLEMENTATION OF EROSION AND SEDIMENT POLLUTION CONTROL BMPS. ADDITIONAL BMPS SHALL BE INSTALLED WHERE NECESSARY OR WHERE DIRECTED BY EITHER THE TOWNSHIP OR THE COUNTY CONSERVATION DISTRICT AS CONSTRUCTION PROGRESSES.
5. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT CONTROL BMPS MUST BE MAINTAINED PROPERLY. 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 CLEANOUT, REPAIR, REPLACEMENT, RE-GRADING, RESEEDING, RE-MULCHING AND RE-NETTING MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
6. THE PERMITTEE AND CO-PERMITTEE MUST ENSURE THAT VISUAL SITE INSPECTIONS ARE CONDUCTED WEEKLY, AND AFTER EACH MEASURABLE PRECIPITATION EVENT BY QUALIFIED PERSONNEL, TRAINED AND EXPERIENCED IN EROSION AND SEDIMENT CONTROL, TO ASCERTAIN THAT THE EROSION AND SEDIMENT CONTROL (E&S) BMPS ARE OPERATIONAL AND EFFECTIVE IN PREVENTING POLLUTION TO THE WATERS OF THE COMMONWEALTH. A WRITTEN REPORT OF EACH INSPECTION SHALL BE KEPT, AND INCLUDE:

   1) A SUMMARY OF THE SITE CONDITIONS, E&S BMPS, AND COMPLIANCE; AND
   2) THE DATE, TIME, AND THE NAME OF THE PERSON CONDUCTING THE INSPECTION.

7. AFTER EACH RUNOFF EVENT, ALL TEMPORARY EROSION AND SEDIMENT POLLUTION CONTROL BMPS SHALL BE INSPECTED, CLEANED AND REPAIRED AS NECESSARY.
8. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN-OUT, REPAIR, REPLACEMENT, RE-GRADING, RE-SEEDING, RE-MULCHING AND RE-NETTING, MUST BE PERFORMED IMMEDIATELY.
9. IF THE INSTALLED EROSION AND SEDIMENT POLLUTION CONTROL BMPS FAIL TO PERFORM AS INTENDED, REPLACEMENT BMPS OR MODIFICATIONS OF THE INSTALLED BMPS WILL BE REQUIRED.
10. SHOULD ANY EROSION AND SEDIMENT POLLUTION CONTROL BMPS CONTAINED WITHIN THIS PLAN PROVE INCAPABLE OF ADEQUATELY REMOVING SEDIMENT FROM ON-SITE FLOWS PRIOR TO DISCHARGE (OR PRIOR TO STABILIZING THE PERMANENT SURFACES), ADDITIONAL MEASURES MUST BE IMMEDIATELY IMPLEMENTED TO ELIMINATE SUCH PROBLEMS.
11. CONTRACTOR SHALL SEPARATE WATER ORIGINATING OUTSIDE OF THE PROJECT BOUNDARY FROM WATER THAT ORIGINATING WITHIN THE PROJECT BOUNDARY.
12. CONTRACTOR SHALL REMOVE ACCUMULATED SEDIMENTS AS REQUIRED AND AT A MINIMUM PRIOR TO THE SEDIMENT REACHING ONE-HALF OF THE ABOVE GROUND HEIGHT OF THE SILT FENCE TO KEEP THE SILT FENCE FUNCTIONAL. REPAIR ALL UNDERCUTTING OR EROSION OF THE TOE ANCHOR IMMEDIATELY WITH COMPACTED BACKFILL MATERIALS.
13. ANY SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE REPLACED WITH ROCK FILTER OUTLETS IMMEDIATELY.
14. ROCK CONSTRUCTION ENTRANCE(S) THICKNESS MUST BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSION BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL MUST BE MAINTAINED ON THE PROJECT SITE FOR THIS PURPOSE. AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PUBLIC ROADWAYS MUST BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE. WASHING OF THE ROADWAY WITH WATER IS NOT PERMITTED UNLESS A VACUUM TRUCK IS UTILIZED FOR THIS PROCESS.
15. SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, WATERS OF THE COMMONWEALTH, FLOODPLAINS OR DRAINAGE SWALES AND MUST BE IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING AN EROSION AND SEDIMENT POLLUTION CONTROL PLAN FOR ALL OFF-SITE BORROW AND WASTE AREAS. THIS PLAN MUST BE SUBMITTED TO THE ENGINEER OF RECORD, APPLICABLE COUNTY CONSERVATION DISTRICT, AND PADEP (AS REQUIRED) FOR REVIEW AND APPROVAL.
17. CONTRACTOR SHALL STABILIZE ALL OFF-SITE BORROW AND WASTE AREAS BY SEEDING AND MULCHING AS SPECIFIED IN THE APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN.
18. IF SIGNS OF BMPS FAILURE ARE NOTED, AN ENGINEER OR OTHER QUALIFIED PROFESSIONAL SHOULD BE CONTACTED.
19. MAINTENANCE OF THE PERMANENT STORMWATER CONTROL BMPS SHALL BE THE RESPONSIBILITY OF OWNER.

RECYCLING AND DISPOSAL OF CONSTRUCTION WASTES

1. INDIVIDUALS RESPONSIBLE FOR EARTH DISTURBANCE ACTIVITIES MUST ENSURE THAT PROPER MECHANISMS ARE IN PLACE TO CONTROL WASTE MATERIALS. CONSTRUCTION WASTES INCLUDE, BUT ARE NOT LIMITED TO, EXCESS SOIL MATERIALS, BUILDING MATERIALS, CONCRETE WASH WATER, SANITARY WASTES, ETC. THAT COULD ADVERSELY IMPACT WATER QUALITY. MEASURES SHOULD BE PLANNED AND IMPLEMENTED FOR HOUSEKEEPING, MATERIALS MANAGEMENT, AND LITTER CONTROL. WHEREVER POSSIBLE, RECYCLING OF EXCESS MATERIALS IS PREFERRED, RATHER THAN DISPOSAL.
2. BUILDING MATERIALS AND OTHER CONSTRUCTION SITE WASTES MUST BE PROPERLY MANAGED AND DISPOSED OF TO REDUCE POTENTIAL FOR POLLUTION TO SURFACE AND GROUND WATERS AS PER 25 PA. CODE § 102.4(B)(5)(XI). PROPER TRASH DISPOSAL, RECYCLING OF MATERIALS, PROPER MATERIALS HANDLING, AND SPILL PREVENTION AND CLEAN-UP REDUCE THE POTENTIAL FOR CONSTRUCTION SITE WASTES TO BE MOBILIZED BY STORMWATER RUNOFF AND CONVEYED TO SURFACE WATERS.
   UNDER NO CIRCUMSTANCES MAY EROSION CONTROL BMPS BE USED FOR TEMPORARY STORAGE OF DEMOLITION MATERIALS OR CONSTRUCTION WASTES.
   WHEREVER HEAVY EQUIPMENT WILL BE USED DURING CONSTRUCTION OF THE CUTS AND FILLS OR PROPOSED BUILDINGS, A POLLUTION PREVENTION AND CONTINGENCY (PPC) PLAN MUST BE AVAILABLE ON SITE. THIS PLAN DOES NOT HAVE TO BE INCLUDED IN THE PERMIT APPLICATION PACKAGE SUBMITTED FOR AN NPDES CONSTRUCTION PERMIT IN PENNSYLVANIA BUT SHOULD BE AVAILABLE ON THE PROJECT SITE. THE APPLICANT MUST PREPARE AND IMPLEMENT A PPC PLAN WHEN STORING, USING OR TRANSPORTING MATERIALS INCLUDING: FUELS, CHEMICALS, SOLVENTS, PESTICIDES, FERTILIZERS, LIME, PETROCHEMICALS, WASTEWATER, WASH WATER, CORE DRILLING WASTEWATER, CEMENT, SANITARY WASTES, SOLID WASTES, OR HAZARDOUS MATERIALS ONTO, ON, OR FROM THE PROJECT SITE DURING EARTH DISTURBANCE ACTIVITIES. THE PPC PLAN MUST BE AVAILABLE UPON REQUEST BY THE DEPARTMENT OR CONSERVATION DISTRICT. GUIDANCE FOR DEVELOPMENT OF A PPC PLAN CAN BE FOUND IN "GUIDELINES FOR THE DEVELOPMENT AND IMPLEMENTATION OF ENVIRONMENTAL EMERGENCY RESPONSE PLANS" (DOCUMENT #400-2200-001), WHICH CAN BE FOUND IN THE DEPARTMENT'S ELIBRARY AT WWW.DEPWEB.STATE.PA.US.
   ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS MUST BE FOLLOWED IN THE USE, HANDLING, AND DISPOSAL OF POTENTIALLY HAZARDOUS MATERIALS.
3. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ANY EXCESS MATERIAL AND MAKE SURE THE SITE(S) RECEIVING THE EXCESS HAS AN APPROVED AND FULLY IMPLEMENTED EROSION AND SEDIMENT CONTROL PLAN THAT MEETS THE CONDITIONS OF CHAPTER 102 AND/OR OTHER STATE OR FEDERAL REGULATIONS. CONCRETE WASH WATER SHALL BE CONTROLLED TO PROJECT AREAS THAT WILL RECEIVE CONCRETE PAVING AS PART OF THE PROJECT'S PROPOSED CONDITIONS.
5. CONCRETE WASH WATER SHALL BE CONTROLLED AT ALL TIMES AND SHALL NOT BE PERMITTED TO ENTER INTO THE STORMWATER RUNOFF FROM THE PROJECT SITE.
6. IN THE EVENT OF A SINKHOLE FORMATION, UNDER THE SUPERVISION OF A PROFESSIONAL GEOLOGIST OR A LICENSED GEOTECHNICAL ENGINEER, MATERIAL DEEMED UNSUITABLE FOR BACKFILL MUST BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S (PADEP) SOLID WASTE MANAGEMENT REGULATIONS.

TEMPORARY STABILIZATION NOTES:

SURFACE STABILIZATION CRITERIA:
ALL DENUDED SOIL SURFACES, INCLUDING SOIL STOCKPILES, ARE SUBJECT TO EROSION AND SHALL BE STABILIZED EITHER TEMPORARILY OR PERMANENTLY. DURING NON-GERMINATION PERIODS, MULCH MUST BE APPLIED AT RECOMMENDED RATES. CRUSHED STONE ON PAVEMENT SUB-GRADES IS CONSIDERED ADEQUATE STABILIZATION. ALL DISTURBED ZONES AND VEGETATED REGIONS SHALL BE STABILIZED, PREFERABLY WITH A PERMANENT TREATMENT AS FOLLOWS:

A. TEMPORARY COVER ON DISTURBED AREAS:
DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE RE-DISTURBED WITHIN ONE (1) YEAR MAY BE SEEDED AND MULCHED WITH A TEMPORARY COVER. PREPARATION OF THE SURFACE, FERTILIZATION AND SEEDING WITH EITHER ANNUAL OR WINTER RYE GRASS SHALL BE DONE IN COMPLIANCE WITH THE PENN STATE GUIDELINES UNDER "EROSION CONTROL & CONSERVATION PLANTING ON NON-CROPLAND".
a. GROUND LIMESTONE SHALL BE APPLIED AT A RATE OF 1.0 TON/ACRE OR 46 LBS/1,000 S.F.
b. FERTILIZER SHALL BE APPLIED AT 50-50-50 LBS/ACRE. (BOTH FERTILIZER AND LIMESTONE SHALL BE WORKED INTO THE SOIL TO A DEPTH OF FOUR (4) INCHES PRIOR TO SEEDING.)
c. ANNUAL RYEGRASS SHALL BE APPLIED AT A RATE OF 48 LBS/ACRE OR 1.1 LB/1,000 S.F.
d. WINTER RYEGRASS SHALL BE APPLIED AT A RATE OF 168 LBS/ACRE OR 3.9 LBS/1,000 S.F.
e. AFTER SEEDING, MULCH WITH HAY OR STRAW AT 3.0 TONS/ACRE OR 138 LBS/ 1,000 S.F. (MULCHING IS MOST APPLICABLE TO THOSE AREAS SUBJECT TO PERIODIC DISTURBANCE AND REWORKING.)
f. GENERAL INFORMATION:
i. AREAS THAT FAIL TO GERMINATE MUST BE RE-SEEDED.
ii. WHERE DISTURBED AREAS ARE DIFFICULT TO STABILIZE, NETTING SHOULD BE USED TO HOLD SEED AND MULCH IN PLACE. THIS IS ESPECIALLY IMPORTANT AROUND WATERCOURSES, WITHIN SWALES AND AREAS OF CONCENTRATED FLOWS, AND ON (STEEP) SLOPES.

B. STANDARD FOR STABILIZATION WITH MULCH:
a. PERFORM ALL CULTURAL OPERATIONS AT RIGHT ANGLES TO THE SLOPE.
b. STRAW AND HAY MULCH SHOULD BE ANCHORED IMMEDIATELY AFTER APPLICATION TO PREVENT WIND BLOWING.
c. GRADE AS NEEDED AND FEASIBLE. SEE STANDARD FOR LAND GRADING.
d. PROTECTIVE MATERIALS TO BE USED:
i. NON-ROTTED SMALL-GRAIN STRAW OR HAY AT 3.0 TONS/ACRE, SPREAD UNIFORMLY AT 140 LBS/1,000 S.F. AND ANCHORED WITH LIQUID MULCH BINDER; OR BY A HYDRO-SEEDER OR HYDRO-MULCHER. (USE IS LIMITED TO FLATTER SLOPES DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.)
ii. LIQUID MULCH BINDERS: APPLY IMMEDIATELY AFTER PLACEMENT OF HAY OR STRAW MULCH TO MINIMIZE LOSS BY WIND OR WATER. IF EMULSIFIED ASPHALT (CONTAINING NO SOLVENTS OR OTHER DILUTING AGENTS TOXIC TO PLANT OR ANIMAL LIFE), APPLY AT A RATE OF 31 GAL/1,000 S.Y.

C. STANDARD FOR LAND GRADING:
a. DEFINITION: RESHAPING THE GROUND SURFACE BY GRADING TO PLANNED GRADES WHICH ARE DETERMINED BY TOPOGRAPHIC SURVEY AND LAYOUT.
b. PROVISIONS SHALL BE MADE TO SAFELY CONVEY SURFACE WATER TO STORM DRAINS OR SUITABLE WATER COURSES AND TO PREVENT SURFACE RUNOFF FROM DAMAGING CUT FACES AND FILL SLOPES.
c. ADJOINING PROPERTY(IES) SHALL BE PROTECTED FROM EXCAVATION AND FILLING OPERATIONS.
d. TIMBER, LOGS, BRUSH, RUBBISH, ROCKS, STUMPS AND VEGETATIVE MATTER WHICH WILL INTERFERE WITH THE GRADING OPERATION OR AFFECT THE PLANNED STABILITY OF FILL AREAS SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH APPROVED DISPOSAL METHODS.
e. FILL MATERIAL IS TO BE FREE OF BRUSH, RUBBISH, TIMBER, LOGS, VEGETATIVE MATTER AND STUMPS IN AMOUNTS THAT WILL BE DETRIMENTAL TO CONSTRUCTING STABLE FILLS.
f. ALL FILLS SHALL BE COMPACTED SUFFICIENTLY FOR THEIR INTENDED PURPOSE AND AS REQUIRED TO REDUCE SLIPPING, EROSION OR EXCESS SATURATION. (REFER TO GEOTECHNICAL REQUIREMENTS OF THE PROJECT SITE FOR SPECIFIC STANDARD FOR FILL PLACEMENT AND COMPACTION.)
g. ALL DISTURBED AREAS SHALL BE LEFT WITH A CLEAN AND FINISHED APPEARANCE AND SHALL BE PROTECTED FROM EROSION USING APPROVED EROSION AND SEDIMENT POLLUTION CONTROL BMPS.

PERMANENT STABILIZATION NOTES:

A. STANDARD FOR SEEDING AND SOIL TREATMENT FOR PERMANENT VEGETATIVE COVER:
a. SITE PREPARATION:
   1. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, ANCHORING AND MAINTENANCE.
   2. ii. SUBSOIL SHOULD BE TESTED BY A REPUTABLE LABORATORY FOR THE LIME REQUIREMENT; AND LIMESTONE, IF NEEDED, SHOULD BE APPLIED TO BRING SOIL PH TO 6.5 AND INCORPORATED INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF FOUR (4) INCHES.
   3. iii. IMMEDIATELY PRIOR TO TOPSOIL DISTRIBUTION, THE SURFACE SHOULD BE SCARIFIED TO PROVIDE A GOOD BOND WITH THE TOPSOIL.
b. APPLYING TOPSOIL:
   AREAS WHICH ARE TO BE TOP-SOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES (6 TO 12 INCHES ON COMPACTED SOILS) PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING, I.E. YARDS.
   1. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING SOIL STRUCTURE.
   2. UNIFORM APPLICATION TO A DEPTH OF FIVE (5) INCHES (UNSETTLED) IS RECOMMENDED. SOILS WITH A PH OF 4.0 OR LESS, OR CONTAINING IRON SULFIDE, SHALL BE COVERED WITH A MINIMUM DEPTH OF TWELVE (12) INCHES OF SOIL HAVING A PH OF 6.0 OR MORE.
c. SEED BED PREPARATION:
   1. PERFORM ALL CULTURAL OPERATIONS AT RIGHT ANGLES TO THE SLOPE.
   2. APPLY 10-20-20 OR EQUIVALENT RATED FERTILIZER AT A RATE OF 500 LBS./ACRE OR 11 LBS./1,000 S.F.
   3. APPLY 300 LBS. OF 38-0-0 PER ACRE OR EQUIVALENT OF SLOW RELEASE NITROGEN.
   4. APPLY PULVERIZED DOLOMITIC LIMESTONE AT A RATE OF 4.0 TON/ACRE OR 184 LBS./1,000 S.F.
   5. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF FOUR (4) INCHES. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM FINE SEEDBED IS PREPARED.
   6. REMOVE FROM THE SURFACE ALL STONES TWO (2) INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLODS, LUMPS OR OTHER UNSUITABLE MATERIAL.
   7. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RE-TILLED AND FIRMED AS ABOVE.
d. GENERAL SEEDING RATES:

PERENNIAL RYEGRASS	1/2 LB./1,000 S.F.
KENTUCKY BLUEGRASS	1.0 LB./1,000 S.F.
RED FESCUE	1-1/2 LBS./1,000 S.F.
SPREADING FESCUE	1-1/2 LBS./1,000 S.F.
FERTILIZER (20-10-10)	14 LBS./1,000 S.F.
HAY OR STRAW MULCH	138 LBS./1,000 S.F. (OR 3 TONS/ACRE)

e. ERNST 5311 CONSERVATION MIX (ERNMX-114) SEEDING RATES:

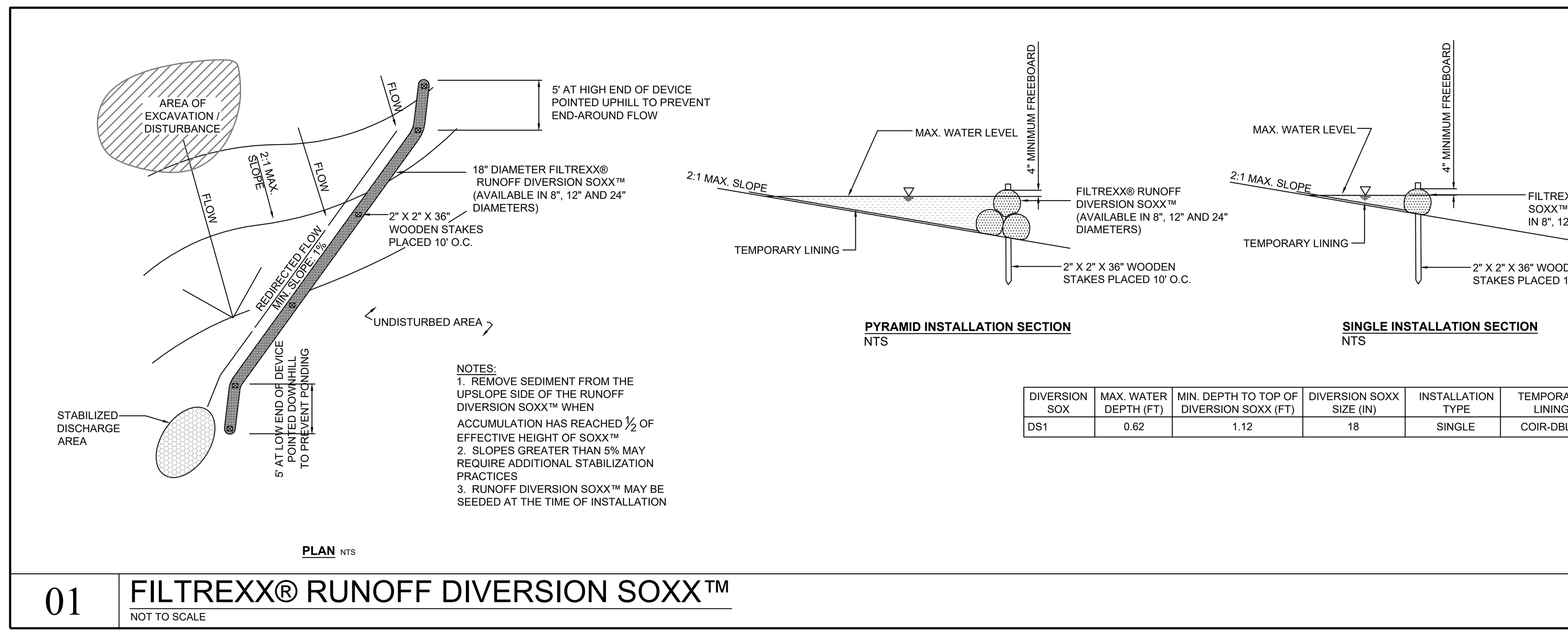
FESTUCA RUBRA, PENNALAWN	
POA PRATENSIS, ALENE	
POA PRATENSIS, CACHE	
LOLIUM MULITIFLORUM	
LOLIUM PERENNE	
PENNLAWN CREEPING RED FESCUE	
ALENE KENTUCKY BLUEGRASS	
CACHE KENTUCKY BLUEGRASS	
ANNUAL RYEGRASS	
TURF TYPE PERENNIAL RYEGRASS	4 LB./1,000 S.F.
FERTILIZER (20-10-10)	14 LBS./1,000 S.F.
HAY OR STRAW MULCH	138 LBS./1,000 S.F. (OR 3 TONS/ACRE)

f. IRRIGATION - (WHERE FEASIBLE):
i. WATER A MINIMUM OF 1/4" TWICE A DAY UNTIL VEGETATION IS WELL ESTABLISHED, ESPECIALLY WHEN SEEDING IS PERFORMED IN ABNORMALLY DRY OR HOT WEATHER OR ON DROUGHTY SITES.

B. STANDARD FOR PERMANENT STABILIZATION WITH SOD:
a. METHODS AND MATERIALS:
   1. CULTIVATED SOD IS PREFERRED OVER NATIVE OR PASTURE SOD. SPECIFY "CERTIFIED SOD", OR OTHER HIGH-QUALITY CULTIVATED SOD.
   2. SOD SHOULD BE FREE OF WEEDS AND UNDESIRABLE COARSE WEEDY GRASSES.
   3. SOD SHOULD BE OF UNIFORM THICKNESS, APPROXIMATELY 5/8 INCH, PLUS OR MINUS 1/4 INCH, AT THE TIME OF CUTTING (EXCLUDES TOP GROWTH).
   4. SOD SHOULD BE VIGOROUS AND DENSE AND BE ABLE TO RETAIN ITS OWN SHAPE AND WEIGHT WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP FROM THE UPPER 10% OF THE STRIP. BROKEN PADS OR TORN AND UNEVEN ENDS WILL NOT BE ACCEPTABLE.
   5. FOR DROUGHT/DRY SITES, A SOD OF KENTUCKY 31 TALL FESCUE AND BLUEGRASS IS PREFERRED OVER A STRAIGHT BLUEGRASS SOD.
   6. ONLY MOIST, FRESH, UN-HEATED SOD SHOULD BE USED. SOD SHOULD BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS, OTHERWISE IT SHALL BE REJECTED.
b. SITE PREPARATION:
   1. SEE STANDARD FOR LAND GRADING.
c. SOIL PREPARATION:
   1. SEE SPECIFICATION FOR SEEDING AND SOIL TREATMENT FOR PERMANENT VEGETATIVE COVER.
d. SOD PLACEMENT:
   1. SOD STRIPS SHOULD BE LAID ON THE CONTOUR, NEVER UP AND DOWN THE SLOPE, STARTING AT THE BOTTOM OF THE SLOPE AND WORKING UP. ON STEEP SLOPES, THE USE OF LADDERS WILL FACILITATE THE WORK AND PREVENT DAMAGE TO THE SOD. DURING PERIODS OF HIGH TEMPERATURE, LIGHTLY IRRIGATE THE SOIL IMMEDIATELY PRIOR TO APPLYING THE SOD.
   2. PLACE SOD STRIPS WITH SNUG EVEN JOINTS THAT ARE STAGGERED. OPEN SPACES WILL RESULT IN EROSION AND SEDIMENT POLLUTION.
   3. ROLL OR TAMP SOD IMMEDIATELY FOLLOWING PLACEMENT TO ENSURE SOLID CONTACT OF ROOT MAT AND SOIL SURFACE. DO NOT OVERLAP SOD. ALL JOINTS SHOULD BE BUTTED TIGHTLY IN ORDER TO PREVENT VOIDS, WHICH WOULD CAUSE DRYING OF THE ROOTS.
   4. ON SLOPES GREATER THAN 3:1, SECURE SOD TO SURFACE SOIL WITH WOOD PEGS, WIRE STAPLES, OR SPLIT SHINGLES (8 TO 10 INCHES LONG BY 3/4 INCH WIDE).
   5. SURFACE WATER CANNOT ALWAYS BE DIVERTED FROM FLOWING OVER THE FACE OF THE SLOPE, BUT A CAPPING STRIP OF HEAVY JUTE OR PLASTIC NETTING, PROPERLY SECURED, ALONG THE CROWN OF THE SLOPE AND EDGES WILL PROVIDE EXTRA PROTECTION AGAINST LIFTING AND UNDERCUTTING OF SOD. THE SAME TECHNIQUE CAN BE USED TO ANCHOR SOD IN WATER-CARRYING CHANNELS AND OTHER CRITICAL AREAS. WIRE STAPLES MUST BE USED TO ANCHOR NETTING IN CHANNEL WORK.
   6. PENETRATE THE SOIL LAYER BENEATH THE SOD TO A DEPTH OF 4 INCHES. MAINTAIN OPTIMUM MOISTURE FOR AT LEAST TWO (2) WEEKS.
e. TOPDRESSING:
   1. IF SLOW RELEASE NITROGEN (300 LBS. OF 38-0-0 PER ACRE OR EQUIVALENT) IS USED IN ADDITION TO SUGGESTED FERTILIZER, THEN A FOLLOW-UP OF TOPDRESSING IS NOT MANDATORY.
   2. SPRING INSTALLATION OF SOD WILL REQUIRE AN APPLICATION OF FERTILIZER SUCH AS 10-20-10 OR EQUIVALENT AT 400 LBS./ACRE OR 10 LBS./1,000 S.F. BETWEEN MARCH 15 AND MAY 1.
   3. FALL INSTALLATION OF SOD WILL REQUIRE THE ABOVE BETWEEN SEPTEMBER 1 AND OCTOBER 15.

ADDITIONAL STABILIZATION NOTES:

1. PERMANENT STABILIZATION IS DEFINED AS 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.
2. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE THE DISTURBED AREAS. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE RE-DISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINAL GRADE OR WHICH WILL NOT BE RE-DISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.
3. AN EROSION CONTROL BLANKET WILL BE INSTALLED ON ALL DISTURBED SLOPES STEEPER THAN 3:1, ALL AREAS OF CONCENTRATED FLOWS, AND DISTURBED AREAS WITHIN 50' OF WATERS OF THE COMMONWEALTH.



NOTES:
1. REMOVE SEDIMENT FROM THE UPSLOPE SIDE OF THE RUNOFF DIVERSION SOXX™ WHEN ACCUMULATION HAS REACHED ½ OF EFFECTIVE HEIGHT OF SOXX™
2. SLOPES GREATER THAN 5% MAY REQUIRE ADDITIONAL STABILIZATION PRACTICES
3. RUNOFF DIVERSION SOXX™ MAY BE SEEDED AT THE TIME OF INSTALLATION

DIVERSION SOX	MAX. WATER DEPTH (FT)	MIN. DEPTH TO TOP OF DIVERSION SOXX (FT)	DIVERSION SOXX SIZE (IN)	INSTALLATION TYPE	TEMPORARY LINING
DS1	0.62	1.12	18	SINGLE	COIR-OBL NET

01 FILTREXX® RUNOFF DIVERSION SOXX™
NOT TO SCALE

SOILS LIMITATION CHART

MAP SYMBOL & SOIL NAME	CUTBANKS CAVE	CORROSIVE CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE / SEASONAL HIGH WATER TABLE	HYDRIC/HYDRIC INLCUSION	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
CHEWACLA SILT LOAM																
Ch	X	C/S			X	X	X	X	X	X		X				X
GLENELG CHANNERY SILT LOAM																
GeC2, GeD, GeD2	X	C		X			X	X	X	X	X	X				X
Manor Loam																
M\gD	X	C		X				X	X	X	X	X				
Made Land, Schist and Gneiss Materials																
Me	NO DATA AVAILABLE															
MELVIN SILT LOAM																
Mn	X	S		X	X	X	X	X	X	X	X	X	X	X	X	X
WEHADKEE SILT LOAM																
We	X	C/S			X	X		X	X	X		X				X

LIMITATIONS	RESOLUTIONS
CUTBANKS / CAVE	IT IS IMPERATIVE THAT APPROPRIATE PRECAUTIONS BE TAKEN TO SAFEGUARD WORKERS DURING ALL TRENCHING AND EXCAVATION OPERATIONS. ALL APPLICABLE OSHA STANDARDS AND REGULATIONS MUST BE IMPLEMENTED AT ALL TIMES.
CORROSIVE TO CONCRETE /STEEL	ADDITIONAL SOILS TESTING TO EVALUATE THE CORROSIVE PROPERTIES OF THE SOILS SHALL BE COMPLETED PRIOR TO CONSTRUCTION AND MATERIAL ADJUSTMENTS WILL BE MADE ACCORDINGLY.
EASILY ERODIBLE	CONSTRUCTION TIMING WILL BE COORDINATED TO AVOID EARTH MOVEMENT OPERATIONS AND MAJOR TRENCHING WORK DURING THE RAINY SEASON TO MINIMIZE EROSION. SEDIMENT BARRIERS WILL BE PLACED DOWNSTREAM OF CONSTRUCTION AREAS TO CAPUTURE SEDIMENTS IN RUNOFF. DISTURBED AREAS WILL BE TEMPORARILY /PERMANENTLY STABILIZED AT THE COMPLETION OF EACH CONSTRUCTION STAGE.
FLOODING	ALL IMPROVEMENTS WILL OCCUR IN AREAS ABOVE THE 100-YEAR FLOODPLAIN.
DEPTH TO SATURATED ZONE / SHWT	THE PROPOSED IMPROVEMENTS AND BMPS HAVE BEEN DESIGNED TO ACCOUNT FOR GROUNDWATER AND ANY OTHER LIMITING ZONE.
HYDRIC / HYDRIC INCLUSIONS	ALL IMPROVEMENTS WILL OCCUR IN AREAS ABOVE THE 100-YEAR FLOODPLAIN. PLANT SPECIES HAVE BEEN SELECTED TO ACCOUNT FOR HYDRIC SOIL CONDITIONS.
LOW STRENGTH / LANDSLIDE PRONE	PRECAUTIONS SHOULD BE TAKEN TO PREVENT SLOPE FAILURES DUE TO IMPROPER CONSTRUCTION PRACTICES SUCH AS OVER-STEEPENING AND OVERLOADING OF SLOPES, REMOVAL OF LATERAL SUPPORT, AND FAILURE TO PREVENT SATURATION OF SLOPES. SETBACKS SHOULD COMPLY WITH THE STANDARDS CONTAINED IN CHAPTER 16 UNLESS IT CAN BE SHOWN THAT PROPOSED CUTS AND FILLS DO NOT POSE A HAZARD TO PUBLIC SAFETY OR TO SURFACE WATERS. ALSO, ROAD FILL MATERIAL WILL LIKELY NEED TO BE IMPORTED IN AREAS WHERE SOILS HAVE LOW STRENGTH. ADDITIONAL SOIL TESTING WILL BE DONE BY A PROFESSIONAL GEOTECNICAL ENGINEER PRIOR TO CONSTRUCTION AND RECOMMENDATION PROVIDED.
SLOW PERCOLATION	RECHARGE BMPS HAVE BEEN DESIGNED IN AREAS WITH POSITIVE PERMEABILITY RATES AS DETERMINED BY FIELD TESTING.
PIPING	CALCULATIONS FOR ANTI-SEEP COLLARS HAVE BEEN PROVIDED, AND ADDED WHERE REQUIRED.
POOR SOURCE OF TOPSOIL	ANY TOPSOIL ENCOUNTERED ON-SITE WILL BE STOCKPILED AND RETUILITZED ON SITE IN LANDSCAPED/LAWN AREAS. ADDITIONAL TOPSOIL REQUIRED WILL BE IMPORTED.
FROST ACTION	CONSTRUCTION TIMING WILL BE COORDINATED TO AVOID PLACING FROST SENSITIVE MATERIALS, SUCH AS POURED CONCRETE, FOUNDATIONS, ETC. DURING FROST POTENTIAL MONTHS.
SHRINK SWELL	CONSTRUCTION TIMING WILL BE COORDINATED TO AVOID EARTH MOVEMENT OPERATIONS AND MAJOR TRENCHING WORK DURING THE RAINY SEASON TO MINIMIZE GROUNDWATER IMPACTS. ALSO, SUMP PUMPS EQUIPPED WITH FILTERING BAGS WILL BE UTILTIZED DURING CONSTRUCTION.
POTENTIAL SINKHOLE	PER PA EMAP AND GEOTECHNICAL INVESTIGATION, THE SITE IS NOT LOCATED IN AN AREA KNOWN FOR NATURALLY OCCURRING GEOLOGICAL FORMATIONS OR SOIL CONDITIONS THAT MAY HAVE THE POTENTIAL TO CAUSE POLLUTION OR POTENTIAL SINK HOLES DURING EARTH DISTURBANCE ACTIVITIES. IN THE EVENT ANY GEOLOGICAL FORMATION OR SOIL CONDITIONS ARE DISCOVERED DURING CONSTRUCTION, THE PERMITTEE SHALL NOTIFY THE ENGINEER OF RECORD AND COUNTY CONSERVATION DISTRICT FOR ACTIONS TO BE TAKEN.
PONDING	ALL IMPROVEMENTS WILL OCCUR IN AREAS NOT SUBJECT TO PONDING.
WETNESS	CONSTRUCTION TIMING WILL BE COORDINATED TO AVOID EARTH MOVEMENT OPERATIONS AND MAJOR TRENCHING WORK DURING THE RAINY SEASON. ADDITIONAL SOIL TESTING WILL BE DONE BY A PROFESSIONAL GEOTECNICAL ENGINEER PRIOR TO CONSTRUCTION AND RECOMMENDATION PROVIDED.

RYAN T. WHITMORE
PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

PROJECT No: 140012
CHECKED BY: R. WHITMORE
CAD I.D. #: 07_NE_140012

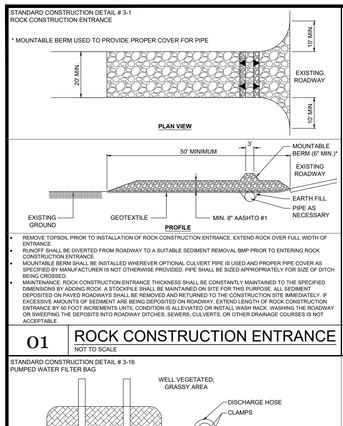
LANDCORE Engineering Consultants, P.C.

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: EROSION and SEDIMENTATION CONTROL NOTES AND DETAILS

SCALE: (H) AS NOTED (V) -
DATE: 2017 - 12 - 22
SHEET: NE
REV. No: 0

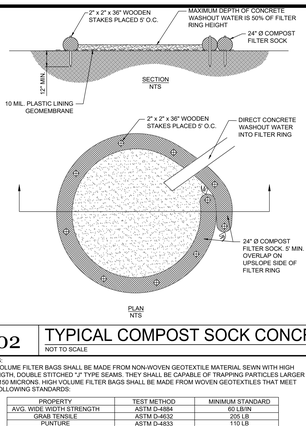
STANDARD CONSTRUCTION DETAIL # 3-1
ROCK CONSTRUCTION ENTRANCE



- 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.

01 ROCK CONSTRUCTION ENTRANCE
NOT TO SCALE

STANDARD CONSTRUCTION DETAIL # 3-2
TYPICAL COMPOST SOCK CONCRETE WASHOUT



NOTES:
1. INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE.
2. 18" Ø FILTER SOCK MAY BE STACKED ONTO DOUBLE 24" Ø SOCKS IN PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT.
3. A SUITABLE IMPERVIOUS GEOMEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING THE SOCKS. THE GEOMEMBRANE SHALL HAVE NO HOLES OR TEARS TO PREVENT LEACHING OF LIQUIDS INTO THE GROUND.
4. CONCRETE WASHOUTS SHALL NOT BE PLACED WITHIN 50' OF STORM DRAINS, OPEN DITCHES OR SURFACE WATERS.
5. COMPOST SOCKS SHOULD BE STAKED IN THE MANNER RECOMMENDED BY THE MANUFACTURER AROUND PERIMETER OF THE GEOMEMBRANE SO AS TO FORM A RING WITH THE ENDS OF THE SOCK LOCATED AT THE UPSLOPE CORNER.
6. PROVIDE PROPER SIGNAGE TO DRIVERS SO THAT THEY ARE AWARE OF THE PRESENCE OF WASHOUT FACILITIES.
7. SEDIMENT BASINS AND SEDIMENT TRAPS MAY NOT BE USED AS CONCRETE WASHOUT DEVICES, SINCE THEY DISCHARGE DIRECTLY TO SURFACE WATERS. THIS DISCHARGE WOULD HAVE AN ADVERSE EFFECT UPON THE RECEIVING WATER. IN ADDITION, CONTINUED USE OF A BASIN OR TRAP AS A WASHOUT FACILITY WOULD SIGNIFICANTLY REDUCE THE STORAGE CAPACITY OF THE BASIN OR TRAP.

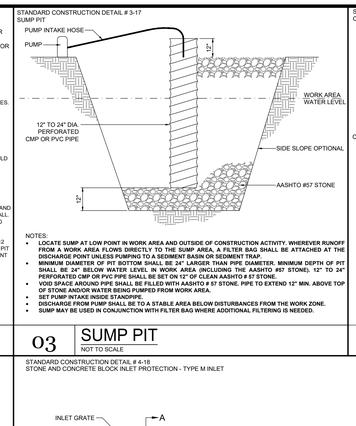
MAINTENANCE:
1. ALL CONCRETE WASHOUT FACILITIES SHOULD BE INSPECTED DAILY. DAMAGED OR LEAKING WASHOUTS SHOULD BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY.
2. ACCUMULATED MATERIALS SHOULD BE REMOVED WHEN THEY REACH 75% CAPACITY.
3. PLASTIC LINERS SHOULD BE REPLACED WITH EACH CLEANING OF THE WASHOUT FACILITY.

SELF-INSTALLED WASHOUTS (ALTERNATE):
THESE TYPES OF WASHOUTS SHOULD BE EXCAVATED BELOW GRADE TO PREVENT RUNOFF OF THE WASH WATER AND MINIMIZE THE POTENTIAL FOR BREAKING. THEY SHOULD BE SIZED TO HANDLE SOLIDS, WASH WATER, AND RAINFALL. A GOOD RULE OF THUMB IS THAT 7 GALLONS OF WASH WATER ARE REQUIRED TO WASH ONE TRUCK CHUTE AND 50 GALLONS FOR THE HOPPER OF A CONCRETE PUMP TRUCK.

FOR LARGER SITES, A BELOW-GRADE WASHOUT SHOULD BE A MINIMUM OF 10 FEET WIDE AND PROVIDE AT LEAST 12 INCHES OF FREEBOARD ABOVE THE LIQUID AND SOLID WASTE. ANTICIPATED BETWEEN CLEANOUT INTERVALS. THE PIT SHOULD BE LINED WITH PLASTIC SHEETING OF AT LEAST 10-MIL THICKNESS (WITH NO HOLES OR TEARS) TO PREVENT LEACHING OF LIQUIDS INTO THE GROUND.

02 TYPICAL COMPOST SOCK CONCRETE WASHOUT INSTALLATION
NOT TO SCALE

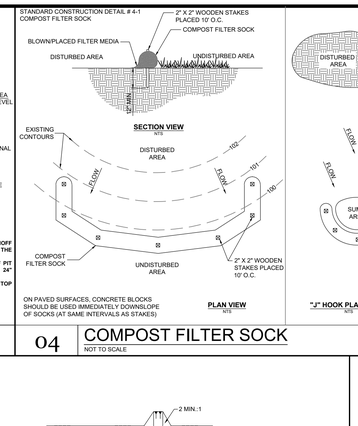
STANDARD CONSTRUCTION DETAIL # 3-17
SUMP PIT



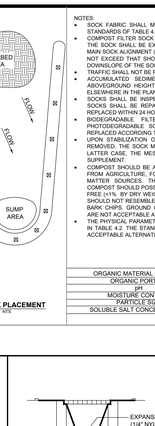
NOTES:
- **LOCATE SUMP AT LOW POINT IN WORK AREA AND OUTSIDE OF CONSTRUCTION ACTIVITY. WHEREVER RUNOFF FROM A WORK AREA FLOWS DIRECTLY TO THE SUMP AREA, A FILTER BAG SHALL BE ATTACHED ON THE DISCHARGE POINT UNLESS PUMPING TO A SEDIMENT BASIN OR SEDIMENT TRAP.**
- **MINIMUM DIAMETER OF 18" (TYPICAL) OR LARGER THAN PIPE DIAMETER. MINIMUM DEPTH OF PIT SHALL BE 24" BELOW WATER LEVEL IN WORK AREA (INCLUDING THE AASHTO #57 STONE). 12" TO 24" PERFORATED CMP OR PVC PIPE SHALL BE SET ON 12" OF CLEAN AASHTO #57 STONE.**
- **VOID SPACE AROUND PIPE SHALL BE FILLED WITH AASHTO # 57 STONE. PIPE TO EXTEND 12" MIN. ABOVE TOP OF STONE AND WATER SHALL BE PUMPED FROM WORK AREA.**
- **SET PUMP INTAKE INSIDE STANDPIPE.**
- **DISCHARGE FROM PUMP SHALL BE TO A STABLE AREA BELOW DISTURBANCES FROM THE WORK ZONE.**
- **SUMP MAY BE USED IN CONJUNCTION WITH FILTER BAG WHERE ADDITIONAL FILTERING IS NEEDED.**

03 SUMP PIT
NOT TO SCALE

STANDARD CONSTRUCTION DETAIL # 4-1
COMPOST FILTER SOCK



ON PAVED SURFACES, CONCRETE BLOCKS SHOULD BE USED IMMEDIATELY DOWNSLOPE OF SOCKS (AT SAME INTERVALS AS STAKES)



NOTES:
- SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2.
- COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT (FIGURE 4.1). MAXIMUM SLOPE LENGTH ABOVE ANY SOCK SHALL NOT EXCEED THAT SHOWN ON FIGURE 4.2. STAKES MAY BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.
- TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
- ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVEGROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
- SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
- BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.
- COMPOST SHOULD BE A WELL DECOMPOSED, WEED-FREE ORGANIC MATTER DERIVED FROM AGRICULTURE, FOOD, STUMP GRINDINGS, AND YARD OR WOODBARK ORGANIC MATTER SOURCES. THE COMPOST SHOULD BE AEROBICALLY COMPOSTED. THE COMPOST SHOULD POSSESS NO OBJECTIONABLE ODORS AND SHOULD BE REASONABLY FREE (<1% BY DRY WEIGHT) OF MAN-MADE FOREIGN MATTER. THE COMPOST PRODUCT SHOULD NOT RESEMBLE THE RAW MATERIAL FROM WHICH IT WAS DERIVED. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS ARE NOT ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX.
- THE PHYSICAL PARAMETERS OF THE COMPOST SHOULD COMPLY WITH THE STANDARDS IN TABLE 4.2. THE STANDARDS CONTAINED IN THE PENNDOT PUBLICATION 408 ARE AN ACCEPTABLE ALTERNATIVE.

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 (IN)	PHOTO-DEGRADABLE (IN)	BIO-DEGRADABLE (IN)	PHOTO-DEGRADABLE (IN)	PHOTO-DEGRADABLE (IN)
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 YEAR

TABLE 4.2
COMPOST STANDARDS

ORGANIC MATERIAL CONTENT	80% - 100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5 - 8.0
MOISTURE CONTENT	35% - 55%
PARTICLE SIZE	98% PASS THROUGH 1" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 dS/m (mmhos/cm) MAXIMUM

TABLE 4.1
COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS

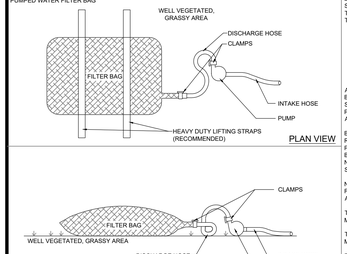
MATERIAL TYPE	3 mil HDPE	5 mil HDPE	5 mil HDPE	MULTI-FILAMENT POLYPROPYLENE (MFPP)	HEAVY DUTY MULTI-FILAMENT POLYPROPYLENE (HDMFPP)
MATERIAL CHARACTERISTICS	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE	BIO-DEGRADABLE	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE
SOCK DIAMETERS	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 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 YEAR
TWO-PLY SYSTEM					
INNER CONTAINMENT NETTING	HDPE BIAXIAL NET				
	CONTINUOUSLY WOUND FUSION-WELDED JUNCTURES				
OUTER FILTRATION MESH	3/4" X 3/4" MAX. APERTURE SIZE 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.					

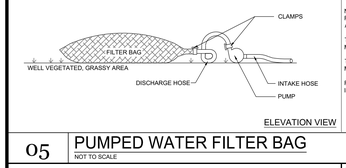
TABLE 4.2
COMPOST STANDARDS

ORGANIC MATERIAL CONTENT	80% - 100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5 - 8.0
MOISTURE CONTENT	35% - 55%
PARTICLE SIZE	98% PASS THROUGH 1" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 dS/m (mmhos/cm) MAXIMUM

04 COMPOST FILTER SOCK
NOT TO SCALE

STANDARD CONSTRUCTION DETAIL # 3-16
PUMPED WATER FILTER BAG





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

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

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

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

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

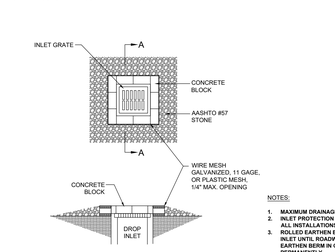
THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

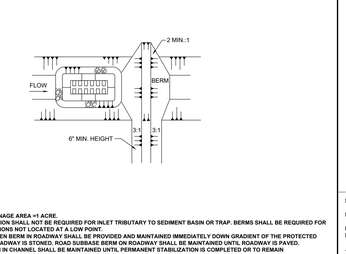
THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR ½ THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

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

05 PUMPED WATER FILTER BAG
NOT TO SCALE

STANDARD CONSTRUCTION DETAIL # 3-15
STONE AND CONCRETE BLOCK INLET PROTECTION - TYPE M INLET

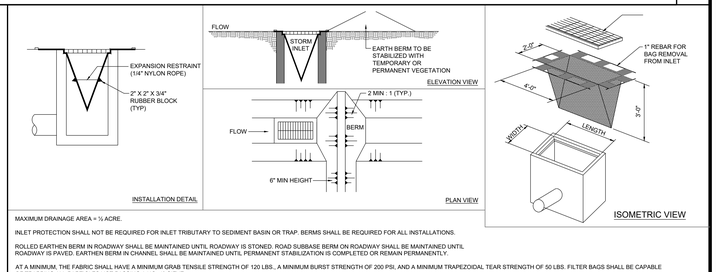




NOTES:
1. **MAXIMUM DRAINAGE AREA =1 ACRE.**
2. **INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS NOT LOCATED AT A LOW POINT.**
3. **ROLLED EARTHEN BERM IN ROADWAY SHALL BE PROVIDED AND MAINTAINED IMMEDIATELY DOWN GRADIENT OF THE PROTECTED INLET UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM IN CHANNEL SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR TO REMAIN PERMANENTLY.**
4. **TOP OF BLOCK SHALL BE AT LEAST 6 INCHES BELOW ADJACENT ROADS IF PONDED WATER WOULD POSE A SAFETY HAZARD TO TRAFFIC.**
5. **SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE HEIGHT OF THE STONE. DAMAGED OR CLOGGED INSTALLATIONS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.**
6. **FOR SYSTEMS DISCHARGING TO HQ OR EV SURFACE WATER, A 6 INCH THICK COMPOST LAYER SHALL BE SECURELY ANCHORED ON OUTSIDE AND OVER TOP OF STONE. COMPOST SHALL MEET THE STANDARDS IN TABLE 4.2.**

07 STONE and CONCRETE BLOCK INLET PROTECTION
NOT TO SCALE

STANDARD CONSTRUCTION DETAIL # 8-14
STONE AND CONCRETE BLOCK INLET PROTECTION - TYPE MI INLET



MAXIMUM DRAINAGE AREA = ½ ACRE.

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

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

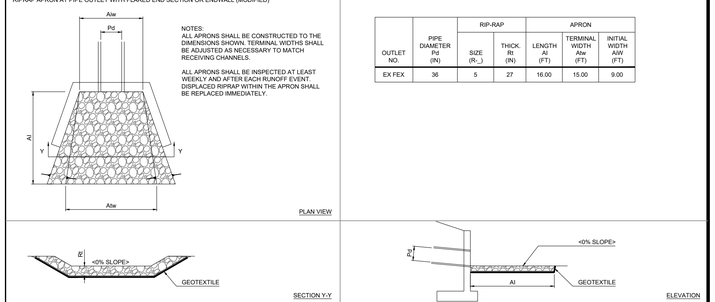
AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

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

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

08 FILTER BAG INLET PROTECTION
NOT TO SCALE

STANDARD CONSTRUCTION DETAIL # 9-1
RIPRAP APRON AT PIPE OUTLET WITH FLARED END SECTION OR ENDWALL (MODIFIED)



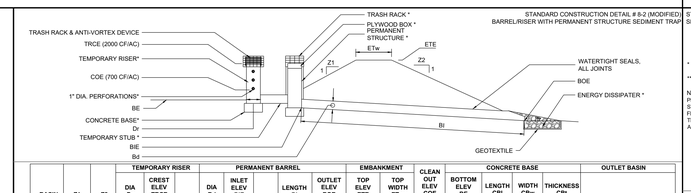
NOTES:
ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

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

OUTLET NO	PIPE DIAMETER Pd (IN)	RIP-RAP SIZE (R-_)	RIP-RAP THICK. Rt (IN)	APRON LENGTH Al (FT)	APRON TERMINAL WIDTH Atw (FT)	APRON INITIAL WIDTH Aw (FT)
EX FEX	36	5	27	16.00	15.00	9.00

12 RIP-RAP APRONS
NOT TO SCALE

STANDARD CONSTRUCTION DETAIL # 8-2 (MODIFIED)
SEDIMENT TRAP TEMPORARY RISER



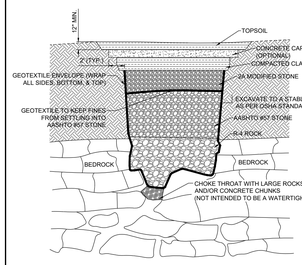
STANDARD CONSTRUCTION DETAIL # 8-3 (MODIFIED)
BARREL/RISER WITH PERMANENT STRUCTURE SEDIMENT TRAP

BASIN NO.	Z1 (FT)	Z2 (FT)	DIA Dr (IN)	TEMPORARY RISER CREST ELEV TRCE (FT)	TEMPORARY RISER MAT'L	PERMANENT BARREL DIA Bd (IN)	PERMANENT BARREL INLET ELEV BIE (FT)	PERMANENT BARREL MAT'L	PERMANENT BARREL LENGTH Bl (FT)	PERMANENT BARREL OUTLET ELEV BOE (FT)	EMBANKMENT TOP ELEV ETE (FT)	EMBANKMENT TOP WIDTH ETw (FT)	CLEAN OUT ELEV COE (FT)	CONCRETE BASE BOTTOM ELEV BE (FT)	CONCRETE BASE LENGTH CBl (IN)	CONCRETE BASE WIDTH CBw (IN)	CONCRETE BASE THICKNESS CBt (IN)	OUTLET BASIN
SB1	2:1	2:1	30	222.68	CMP	24	216.78	RCP	178.00	191.56	227.00	10	219.60	216.78	48	48	18	SEE RIP-RAP APRON DETAIL

* SEE SEDIMENT BASIN TEMPORARY RISER & PERMANENT STRUCTURE, EMERGENCY SPILLWAY, TRASH RACK & ANTI-VORTEX DEVICE, ENERGY DISSIPATER, AND SEDIMENT STORAGE DEWATERING FACILITY DETAILS.
1. **FILL MATERIAL FOR THE EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS. THE EMBANKMENT SHALL BE COMPACTED IN LAYERED LIFTS OF NOT MORE THAN 6" TO 9". THE MAXIMUM ROCK SIZE SHALL BE NO GREATER THAN 2/3 THE LIFT THICKNESS.**
2. **UPON COMPLETION, THE EMBANKMENT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED ACCORDING TO THE SPECIFICATIONS OF THE E&S PLAN DRAWINGS.**
3. **ALL SEDIMENT TRAPS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT.**
4. **ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE OF ACCUMULATED SEDIMENT AS WELL AS ALL USED BASIN DIMENSIONS. DISPOSE OF MATERIALS REMOVED FROM THE TRAP IN THE MANNER DESCRIBED IN THE E&S PLAN.**
5. **CHECK EMBANKMENTS, SPILLWAYS, AND OUTLETS FOR EROSION, PIPING AND SETTLEMENT. CLOGGED OR DAMAGED SPILLWAYS AND/OR EMBANKMENTS SHALL BE IMMEDIATELY RESTORED TO THE DESIGN SPECIFICATIONS.**
6. **CONCRETE BASE SHALL BE POURED IN SUCH A MANNER AS TO INSURE THAT CONCRETE FILLS BOTTOM OF RISER TO INVERT OF THE OUTLET PIPE TO PREVENT RISER FROM BREAKING AWAY FROM THE BASE. MINIMUM BASE WIDTH EQUALS 2 TIMES RISER DIAMETER.**
7. **EMBEDDED SECTION OF ALUMINUM OR ALUMINIZED PIPE SHALL BE PAINTED WITH ZINC CHROMATE OR EQUIVALENT.**

13 BARREL/RISER WITH PERMANENT STRUCTURE SEDIMENT BASIN
NOT TO SCALE

STANDARD CONSTRUCTION DETAIL # 7-17.3
SINKHOLE REPAIR WITH AN IMPERVIOUS COVER



- LOOSE MATERIAL SHALL BE EXCAVATED FROM THE SINKHOLE AND EXPOSE SOLUTION VOID(S) IF POSSIBLE. ENLARGE SINKHOLE IF NECESSARY TO ALLOW FOR INSTALLATION OF FILTER MATERIALS. OSHA REGULATIONS MUST BE FOLLOWED AT ALL TIMES DURING EXCAVATION.
- GEOTEXTILE SHALL BE NON-WOVEN WITH A BURST STRENGTH BETWEEN 100 AND 200 PSI.
- SELECT FIELD STONE(S) ABOUT 1.5 TIMES LARGER THAN SOLUTION VOID(S) TO FORM "BRIDGE." PLACE ROCK(S) SO NO LARGE OPENINGS EXIST ALONG THE SIDES. STONES USED FOR THE "BRIDGE" AND FILTERS SHALL HAVE A MODERATELY HARD ROCK STRENGTH AND BE RESISTANT TO ABRASION AND DEGRADATION. SHALE AND SIMILAR SOFT AND/OR NON-DURABLE ROCK ARE NOT ACCEPTABLE.
- MINIMUM THICKNESS OF R-4 ROCK IS 18.* AASHTO #57 STONE THICKNESS SHALL BE ½ TO ¼ THAT OF THE R-4 ROCK. MINIMUM THICKNESS OF 2A MODIFIED CRUSHED STONE SHALL BE 9". AASHTO #57 STONE AND 2A MODIFIED CRUSHED STONE SHALL BE COMPACTED AFTER EACH PLACEMENT.
- COMPACTED CLAY SEAL SHALL BE A MINIMUM OF 12" THICK. CLAY SHALL BE PLACED IN 6" TO 9" LIFTS AND THOROUGHLY COMPACTED.
- CONCRETE CAP, WHICH IS OPTIONAL, SHALL BE A MINIMUM OF 8" THICK. USE 4,000 PSI CONCRETE WITH 6" X 6" - 6 GAUGE WELDED WIRE FABRIC, OR # 3 REBAR ON 18" O.C. BOTH WAYS.
- TOPSOIL SHALL BE A MINIMUM OF 12" THICK. GRADE FOR POSITIVE DRAINAGE AWAY FROM SINKHOLE AREA.
- DUE TO VARIABLE NATURE OF SINKHOLES, THEY SHOULD BE REPAIRED UNDER THE DIRECT OBSERVATION AND SUPERVISION OF A PROFESSIONAL GEOLOGIST OR LICENSED GEOTECHNICAL ENGINEER.

14 SEDIMENT BAS

LANDSCAPE NOTES

(AS APPLICABLE TO THIS PROJECT)

GENERAL NOTES

1. THE LANDSCAPE PLAN IS TO BE USED FOR LANDSCAPE PURPOSES ONLY.
2. ALL DISTURBED UNPAVED AREAS, EXCLUDING PLANTING BEDS, ARE TO BE INSTALLED AS LAWN IN ACCORDANCE WITH SEEDING SPECIFICATIONS, UNLESS OTHERWISE NOTED.
3. IF IRRIGATION IS REQUIRED BY THE OWNER OR APPROVING MUNICIPALITY, THE CONTRACTOR SHALL SUBMIT AN IRRIGATION DESIGN FOR BOTH LAWN & BED AREAS TO THE PROJECT REPRESENTATIVE / OWNER FOR REVIEW AND APPROVAL. IRRIGATION DESIGN SHALL PROVIDE FOR ANY PRESSURE REDUCING DEVICES REQUIRED TO MEET MAXIMUM PRESSURE REQUIREMENT. SYSTEM DESIGN SHALL SHOW ALL VALVES, PIPING, HEADS, BACK FLOW PREVENTION DEVICES, METERS, CONTROLLERS, ROUTING SLEEVES AND ANY OTHER DEVICES NECESSARY.
4. THE PROPERTY OWNER AGREES TO MAINTAIN AND REPLACE TREES IN ACCORDANCE WITH HAMILTON TOWNSHIP ORDINANCE SECTION.
5. MAINTAIN PROPER SEPARATION BETWEEN TREES AND UTILITIES. TREES MUST BE PLANTED A MINIMUM DISTANCE OF 3' (THREE FEET) FROM CURBS AND SIDEWALKS, 15' (FIFTEEN FEET) FROM OVERHEAD UTILITIES, AND 6' (SIX FEET) FROM UNDERGROUND UTILITIES.
6. CLEAR SIGHT TRIANGLES ARE TO BE KEPT FREE OF ALL OBSTRUCTIONS, INCLUDING, BUT NOT LIMITED TO, SHRUBS OR GROUNDCOVERS GREATER THAN ONE FOOT HIGH, TREES, STRUCTURES, OR EXISTING VEGETATION. CLEAR AREA BETWEEN HIGHER THAN 2.0' AND LOWER THAN 10.0'
7. LOCATIONS OF UTILITIES SHOWN ON THE DRAWINGS MIGHT NOT COINCIDE PRECISELY WITH ACTUAL LOCATIONS IN THE FIELD. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ALL UNDERGROUND AND ABOVE GROUND UTILITIES PRIOR TO COMMENCING PLANTING OPERATIONS.
8. GUARANTEE: ALL PLANTS SHALL BE GUARANTEED BY CONTRACTOR FOR THE PERIOD UP TO ONE YEAR AFTER STORE OPENING. PLANTS SHALL BE REPLACED DURING THIS PERIOD IF THEY DIE, FAIL TO EXHIBIT TYPICAL GROWTH OR BECOME DISFIGURED. THE REPLACEMENT PLANT SHALL MATCH THE ORIGINAL PLANT IN SIZE AND SPECIES. AT THE END OF THE SPECIFIED MAINTENANCE/GUARANTEE PERIOD, ANY MATERIAL THAT, IN THE OPINION OF THE OWNER OR MUNICIPAL REPRESENTATIVE, IS SIGNIFICANTLY DISFIGURED OR 25% DEAD OR MORE SHALL BE CONSIDERED DEAD AND MUST BE REPLACED AT NO CHARGE. A TREE SHALL BE CONSIDERED DEAD WHEN THE MAIN LEADER HAS DIED BACK, OR IF 25% OR MORE OF THE CROWN IS DEAD.
9. MAINTENANCE: ALL PLANTINGS SHALL BE PERPETUALLY MAINTAINED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING PLANTINGS FOR THE PERIOD UP TO ONE YEAR AFTER STORE OPENING. THE LANDOWNER SHALL BE RESPONSIBLE FOR MAINTENANCE AFTER THIS PERIOD HAS EXPIRED.
10. THE DEVELOPER SHALL CONTACT THE TOWNSHIP IN WRITING TO REQUEST A FINAL INSPECTION FOR ACCEPTANCE AT THE END OF THE GUARANTEE PERIOD.
11. ALL TREE WRAP AND STAKING MATERIALS MUST BE REMOVED BY THE CONTRACTOR AT THE CONCLUSION OF THE MAINTENANCE/GUARANTEE PERIOD.

PLANTING NOTES

1. THE TOWNSHIP SHALL BE NOTIFIED PRIOR TO BEGINNING PLANTING OPERATIONS.
2. THE CONTRACTOR SHALL FURNISH AND PLANT ALL PLANTS SHOWN ON THE DRAWINGS, AS SPECIFIED, AND IN QUANTITIES INDICATED ON THE PLANT LIST. WHEN A DISCREPANCY ARISES IN QUANTITY, THE ACTUAL NUMBER OF PLANTS SHOWN ON THE DRAWINGS SHALL GOVERN.
3. ALL PLANTS SHALL BE QUALITY NURSERY GROWN MATERIAL COMPLYING WITH THE STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERYMEN AND ANSI Z60.1. THEY SHALL BE FRESHLY DUG AND SUPPLIED TO THE SITE FREE OF HARMFUL INSECTS, DISEASE, DISFIGUREMENT, OR DAMAGE TO ROOT BALLS, BARK, STEMS, OR BRANCHES. THREE PLANTS OF EACH SPECIES SHALL BEAR A LABEL LISTING THE FULL BOTANICAL NAME OF THE PLANT AND SHALL BE CERTIFIED BY THE SUPPLIER TO BE THE SPECIES LABELED.
4. ANY PLANT FOUND TO BE DAMAGED, DISEASED, DISFIGURED, OR IN NONCOMPLIANCE WITH ANSI SPECIFICATIONS, SPECIES, OR QUALITY WILL BE REJECTED AND SHALL BE REMOVED FROM THE SITE AND REPLACED.
5. ALL PLANTS SHALL BE HARDY UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT. ALL PLANT MATERIAL SHALL MINIMALLY BE HARDY WITHIN THE USDA HARDINESS ZONE 6.
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 CERTIFIED BY APPROPRIATE STATE AND FEDERAL AUTHORITIES TO BE FREE OF DISEASE AND INSECT PESTS, EGGS OR LARVAE. THEY SHALL HAVE HEALTHY, WELL-DEVELOPED ROOT SYSTEMS.
7. FALL DIGGING HAZARD: ANY SPECIES LISTED BELOW, IF INCLUDED ON THE PLANT LIST, MUST NOT BE DUG IN THE FALL (OCTOBER THROUGH DECEMBER) BECAUSE OF RISK TO THE TREE'S SURVIVAL. SPECIAL EXCEPTIONS MAY BE GRANTED IF THE TOWNSHIP IS NOTIFIED AND AN EXTENDED WARRANTY ON THESE PLANTS IS AGREED UPON PRIOR TO DIGGING. THE FOLLOWING VARIETIES SHOULD NOT BE DUG IN FALL: BETULA, CARPINUS, CELTIS, CERCIDIPHYLLUM, CRATAEGUS, CRYPTOMERIA, FAGUS, HALESIA, ILEX (TREE FORM VARIETIES), KOELREUTERIA, LIQUIDAMBAR, LIRIODENDRON, NYSSA, OSTRYA, PRUNUS, PYRUS, QUERCUS (EXCEPT QUERCUS PALUSTRIS), SALIX (WEEPING VARIETIES), SORBUS, TAXODIUM, TILIA TOMENTOSA, AND ULMUS. DIGGING FOR MALUS AND ZELKOVA VARIETIES SHOULD BE AVOIDED IN FALL ONLY WHEN IN LEAF.
8. SUBSTITUTIONS: WHEN PLANTS OF A SPECIFIED KIND OR SIZE ARE NOT AVAILABLE WITHIN A REASONABLE DISTANCE (TYPICALLY WITHIN A 150 MILE RADIUS OF PROJECT SITE), SUBSTITUTIONS MAY BE MADE UPON REQUEST BY THE CONTRACTOR IF APPROVED BY THE LANDSCAPE ARCHITECT, OWNER AND TOWNSHIP. NOTIFY OWNER'S REPRESENTATIVE IN WRITING WITH ALL SUBSTITUTION REQUESTS TO OBTAIN APPROVALS.
9. SIZE: ALL PLANTS SHALL CONFORM TO THE MEASUREMENT SPECIFIED ON THE PLANT LIST, UNLESS AUTHORIZED IN WRITING BY THE TOWNSHIP.
10. MEASUREMENT: DIMENSIONS OF TREES AND SHRUBS SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK ANSI Z60.1, LATEST EDITION.
11. SHADE TREES SHALL HAVE A MINIMUM BRANCHING HEIGHT OF SEVEN (7) FEET ZERO (0) INCHES ABOVE THE GROUND AS GROWN IN THE NURSERY UNLESS OTHERWISE NOTED. MINOR PRUNING OF LOWER BRANCHES MIGHT BE NECESSARY. HOWEVER, TREES WITH DISFIGURED HEADS CAUSED BY THE NEED FOR SIGNIFICANT REMOVAL OF LOWER BRANCHES WILL NOT BE ACCEPTED AND MUST BE REPLACED IMMEDIATELY.
12. TREES IN LEAF, INCLUDING EVERGREENS, WHEN PLANTED SHALL BE TREATED WITH ANTI-DESICCANT SUCH AS WILT-PROOF IF PLANTED DURING THE MONTHS OF JUNE THROUGH SEPTEMBER, NOVEMBER, AND DECEMBER.
13. BALLED AND BURLAPPED PLANTS SHALL BE DUG WITH FIRM NATURAL BALLS OF EARTH, OF DIAMETER AND DEPTH TO INCLUDE MOST OF THE FIBROUS ROOTS. CONTAINER GROWN STOCK SHALL HAVE BEEN GROWN IN A CONTAINER LONG ENOUGH FOR THE ROOT SYSTEM TO HAVE DEVELOPED SUFFICIENTLY TO HOLD ITS SOIL TOGETHER FIRM AND WHOLE. NO PLANTS SHALL BE LOOSE IN THE CONTAINER.
14. ROOT BALLS SHALL BE ADEQUATELY PROTECTED AT ALL TIMES FROM SUN AND DRYING WINDS OR FROST.
15. PLANTS WITH BROKEN ROOT BALLS OR EXCESSIVE DAMAGE TO THE CROWN, STEM OR HEAD SHALL BE REPLACED PRIOR TO PLANTING. ANY PLANT SIGNIFICANTLY DAMAGED AFTER PLANTING SHALL BE REPLACED PRIOR TO FINAL DEDICATION. THE REPLACEMENT PLANT SHALL MAINTAIN A FULL GUARANTEE FOR THE DURATION SPECIFIED FOR THE PROJECT.
16. TAKE EXTREME CARE IN HANDLING AND INSTALLING ALL PLANTS TO PREVENT DAMAGE TO BARK, BRANCHES, AND ROOT BALLS.
17. PREPARE TREE AND SHRUB PLANTING PITS WITH PROPER SIZE EXCAVATIONS AND BACKFILL WITH PREPARED PLANTING MIXTURE LAYERS. WATER THOROUGHLY TO ALLOW SETTLEMENT AND REMOVE AIR POCKETS.
18. ROOT BALLS OF BALLED AND BURLAPPED (B&B) PLANTS COMMONLY ARRIVE FROM NURSERIES WITH EXCESS SOIL OVER THE CROWN. CAREFULLY REMOVE BURLAP FROM THE TOP OF THE ROOTBALL AND EXAMINE THE TOP OF THE ROOTBALL TO DETERMINE THE ACTUAL CROWN ELEVATION, OR ROOT FLAIR. CAREFULLY REMOVE ANY EXCESS SOIL OVERTOP THE ROOTBALL TO EXPOSE THE CORRECT ELEVATION. WHEN CORRECTLY INSTALLED, THE CROWN OF A PLANT SHALL BE AN INCH OR TWO HIGHER THAN THE PROPOSED GRADE ELEVATION AND NEVER LOWER THAN THE PROPOSED ELEVATION. HIGH OR LOW ROOT BALLS SHALL NOT BE ACCEPTED.
19. BACKFILL PLANTING SOIL MIX SHALL BE AS SPECIFIED ON THE PLANTING DETAILS AND/OR NOTES. IF NOT SPECIFIED, BACKFILL MIX SHALL CONTAIN 25% TOPSOIL, 25% COMPOST, EARTHMATE, PEAT MOSS OR OTHER HIGH-QUALITY ORGANIC AMENDMENT MIXED WITH AN EQUAL QUANTITY OF EXISTING SOIL. IF EXCAVATED SOIL IS GOOD QUALITY TOPSOIL, THEN THE BACKFILL MIX MAY CONTAIN 25% COMPOST, EARTHMATE, PEAT MOSS OR OTHER HIGH-QUALITY ORGANIC AMENDMENT MIXED WITH 75% EXISTING TOPSOIL.
20. FERTILIZE ALL PLANTS WITH APPROPRIATE STARTER FERTILIZER AT TIME OF PLANTING.
21. ALL PLANTINGS MUST BE THOROUGHLY WATERED ON THE DAY OF INSTALLATION. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING WATER FOR THIS OPERATION. DURING PERIOD(S) OF DROUGHT (DEFINED AS NO RAINFALL WITHIN A THREE WEEK PERIOD) DURING THE FIRST GROWING SEASON , THE CONTRACTOR SHALL WATER ALL PLANTINGS ONCE WEEKLY.
22. MULCH ALL PLANTINGS WITH A 3" (THREE INCH) LAYER OF FINELY SHREDDED BARK MULCH OR LICORICE ROOT IMMEDIATELY AFTER PLANTING OPERATIONS ARE COMPLETED. THE MULCH SHALL BE AGED A MINIMUM OF 6 MONTHS. A GRANULAR PRE-EMERGENT WEED CONTROL SHALL BE SPREAD PRIOR TO MULCHING. THE LIMIT OF THIS MULCH FOR DECIDUOUS TREES AND SINGLE EVERGREEN TREES SHALL BE THE AREA OF THE PIT EXCAVATION. FOR EVERGREEN TREE AND SHRUB CLUSTERS, A FULLY MULCHED BED SHALL BE CREATED TO INCLUDE ALL PLANTS IN THE GROUPING TO THE EXTENT OF THEIR COLLECTIVE BRANCH DRIP LINE. MULCH PLANTING BEDS ENTIRELY AROUND AND BETWEEN ALL PLANTS FOR A FULLY MULCHED BED. MULCH BED SHALL BE CLEANLY EDGED & TAPERED TO MEET ADJACENT GRADE.
23. ALL SHRUBS ARE TO BE MULCHED IN GROUPS. NO SINGULARLY MULCHED SHRUBS WILL BE ACCEPTED, UNLESS A SINGULAR SPECIMEN SHRUB IN LAWN HAS BEEN SHOWN ON THE DRAWINGS. A CONTINUOUS MULCH BED SHALL BE PROVIDED FOR EACH GROUPING OR CLUSTER OF SHRUBS TO THE EXTENT OF THEIR COLLECTIVE BRANCH DRIP LINE.
24. WEED CONTROL: ALL PLANTING AREAS SHALL BE FREE FROM WEEDS PRIOR TO THE BEGINNING OF PLANTING OPERATION. CONTACT HERBICIDE SPRAYS SHOULD ONLY BE USED AS REQUIRED AND ALL MANUFACTURES WRITTEN INSTRUCTIONS AND STRICTLY FOLLOWED.
25. TREES SHALL BE STAKED AND GUYED AS SHOWN ON THE PLANTING DETAILS.
26. EACH TREE AND SHRUB SHALL BE PRUNED IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS TO PRESERVE THE NATURAL CHARACTER OF THE PLANT. REMOVE DEAD, DYING OR DAMAGED BRANCHES, WEAK CROTCHES, AND POTENTIAL DOUBLE LEADERS BY REMOVING WHOLE BRANCH SECTIONS BACK TO A BRANCH UNION USING PROPER HORTICULTURAL PRACTICES. DO NOT TIP- OR STUB-CUT BRANCHES. THE FORM OF THE PLANT SHALL REMAIN TYPICAL OF ITS SPECIES. PRUNING OF THE CENTRAL LEADER, SHEARING, OR END-CUTTING OF BRANCHES SHALL RENDER THE PLANT "DISFIGURED" AND IT SHALL BE REJECTED AND REPLACED.
27. ALL PLANTING SHALL BE INSTALLED AT THE LOCATIONS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANTING AT THE CORRECT GRADES, ALIGNMENT, AND TO THE INDICATED LAYOUT OF THE PLANTING BEDS.
28. LAYOUT OF PLANTING: THE CONTRACTOR SHALL LAY OUT WITH IDENTIFIABLE STAKES AND PAINT THE LOCATION OF ALL TREES, SHRUBS AND PLANTING BEDS AS INDICATED ON DRAWINGS. THE LAYOUT OF PLANTINGS SHALL BE APPROVED BY THE OWNER AND TOWNSHIP PRIOR TO ANY EXCAVATION OF PLANT PITS OR PLANTING BEDS. THE OWNER OR OWNER'S REPRESENTATIVE MUST APPROVE PLANTING LOCATIONS PRIOR TO ANY EXCAVATION OF PLANT PITS OR PLANTING BEDS TO ENSURE NO CONFLICT WILL OCCUR WITH SIGNAGE OR LIGHT POLE LOCATIONS.
29. MINOR ADJUSTMENTS TO TREE LOCATIONS MAY BE NECESSARY DUE TO FIELD CONDITIONS AND FINAL GRADING. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE IF MAJOR ADJUSTMENTS ARE REQUIRED.
30. CONDITIONS DETRIMENTAL TO PLANTS: THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING OF ALL SOIL OR DRAINAGE CONDITIONS WHICH THE CONTRACTOR CONSIDERS DETRIMENTAL TO THE GROWTH OF PLANTS. THE CONTRACTOR SHALL STATE THE CONDITIONS AND SUBMIT A PROPOSAL FOR CORRECTING THE CONDITIONS, INCLUDING ANY CHANGE IN COST, FOR REVIEW AND ACCEPTANCE BY THE OWNER'S REPRESENTATIVE.
31. NO PLANTINGS OR STRUCTURES SHALL BE PERMITTED WITHIN ANY EASEMENTS.

LANDSCAPE MAINTENANCE MANAGEMENT PROGRAM

1. GENERAL
   - 1.1. ALL MAINTENANCE OPERATIONS AS STATED HEREIN SHALL BE ADHERED TO ON AN ANNUAL BASIS.
   - 1.2. ALL PLANTING AREAS (INCLUDING LAWNS, BUFFERS AND PARKING LOTS) SHALL BE PERIODICALLY INSPECTED A MINIMUM OF ONCE PER MONTH; EVERY 2 WEEKS DURING THE GROWING SEASON OR AFTER EACH MOWING SESSION. A GENERAL FALL CLEAN-UP SHALL BE SCHEDULED EACH YEAR.
   - 1.3. ALL UNDESIRABLE LITTER, DEBRIS AND WEEDS SHALL BE REMOVED ON A WEEKLY BASIS.
   - 1.4. MAINTAIN A MINIMUM OF A 2 INCH DEPTH OF ORGANIC HARDWOOD MULCH OR EQUIVALENT ON ALL PLANTING BEDS, CURBED ISLANDS WITHIN THE PARKING LOT AND ALL PLANTERS ADJACENT TO THE BUILDING. ADJACENT LAWN AREAS SHOULD BE EDGED TO MAINTAIN A NEAT DISTINCT BORDER.
   - 1.5. ALL BED AREAS ARE TO RECEIVE AN APPLICATION OF PRE-EMERGENCE SUCH AS "PREEN" OR APPROVED EQUAL IN EARLY SPRING.
   - 1.6. ALL STAKES AND GUY WIRES ON NEWLY PLANTED DECIDUOUS AND EVERGREEN TREES SHALL BE MAINTAINED IN GOOD CONDITION FOR THE DURATION OF THE GUARANTEE PERIOD. ALL STAKES AND GUYS ARE TO BE REMOVED UPON COMMENCEMENT OF THIS PERIOD OR ONE YEAR, WHICH EVER OCCURS FIRST.
2. SEASONAL FLOWERS WHEN APPLICABLE
   - 2.1. ANNUAL FLOWERS PLANTED IN EITHER BED AREAS OR PLANTER BEDS SHALL BE PERIODICALLY AMENDED, AS WELL AS THE SOIL IN SAID AREAS AMENDED ANNUALLY. NEW PLANTINGS SHALL BE PROVIDED IN MAY OF EACH YEAR. DURING THE GROWING SEASON, ALL BEDS SHALL RECEIVE PERIODIC INSPECTION (AS STATED IN NOTE #1) AND WEEDING TO MAINTAIN NEAT APPEARANCE.
3. TURF
   - 3.1. LAWN AREAS SHALL NOT EXCEED A HEIGHT OF 3 INCHES. APPROXIMATELY 25 TO 30 MOWINGS PER YEAR WILL BE REQUIRED.
   - 3.2. FERTILIZER AND SOIL AMENDMENTS SHOULD BE ADDED AS NECESSARY AND/OR ON A SEASONAL BASIS. FERTILIZER IS OPTIMALLY APPLIED TO LAWN AREAS FOUR TIMES PER SEASON. TIMING, FREQUENCY AND RATE OF APPLICATION SHOULD BE ADJUSTED ACCORDING TO WEATHER AND HORTICULTURAL AND SOIL TEST CONDITIONS FOR EACH SPECIFIC SITE. FERTILIZER SHOULD BE APPLIED BY ACCEPTED METHODS ONLY. SAFETY SHOULD ALWAYS BE OF PRIME CONSIDERATION. CARE SHOULD BE TAKEN NOT TO APPLY FERTILIZER WHEN GROUND IS WET, UNDER EXTREME STRESS, WHEN PEOPLE ARE PRESENT OR DURING WINDY CONDITIONS.
   - 3.3. SOIL AMENDMENTS SUCH AS LIME OR GYPSUM MAY HAVE TO BE ADDED TO THE SOIL PERIODICALLY. THE NEED FOR SUCH SOIL AMENDMENTS SHOULD BE ANALYZED DURING THE PERIODIC INSPECTIONS AND IN CONJUNCTION WITH A SOIL TEST.
   - 3.4. APPLY LIME AND SOIL AMENDMENTS AT INTERVALS WHEN REQUIRED. DO NOT APPLY SOIL AMENDMENTS WHILE TURF AREAS ARE WET, UNDER EXTREME STRESS, WHEN PEOPLE ARE PRESENT, OR IN WINDY CONDITIONS.
4. PLANTINGS
   - 4.1. SOIL AMENDMENTS SHOULD BE APPLIED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS OR BASED UPON SOIL TEST RESULTS.
   - 4.2. APPLY A 3-1-2 (21-7-14, 10-4-6, OR 24-4-8) 50% ORGANIC FERTILIZER TWICE A YEAR BETWEEN MARCH 15 TO APRIL 15 AND SEPTEMBER 1 TO OCTOBER 1. IF NECESSARY TWO ADDITIONAL APPLICATIONS MAY BE MADE IN MAY AND NOVEMBER.
   - 4.3. DO NOT APPLY SOIL AMENDMENTS OR FERTILIZER WHILE PLANTS ARE UNDER EXTREME STRESS, IN WINDY CONDITIONS OR WHILE PEOPLE ARE PRESENT.
5. PRUNINIG
   - 5.1. REMOVAL OF DEAD, DISEASED, INSECT INFESTED OR WEAK WOOD SHALL TAKE PLACE IN DORMANT SEASON, OR AFTER FLOWERING. EXCESSIVE SHOOTS AND SUCKERS SHALL BE REMOVED. ALL TREES WITHIN THE PARKING LOT ARE TO BE MAINTAINED AT A MINIMUM LIMB HEIGHT OF TEN FEET (10.0').
   - 5.2. SHRUB MATERIAL USED AS A SCREEN SHOULD BE PRUNED AS A MASS TO ENHANCE THEIR NATURAL FORM. HEDGES SHOULD BE PRUNED TO MAINTAIN A TRAPEZOIDAL FORM.
   - 5.3. ROOT PRUNING OF TREES ADJACENT TO CURBS OR SIDEWALKS SHOULD OCCUR DURING PERIODIC INSPECTION WITH KNOWLEDGE OF MOST RECENT PRUNING. NO MORE THAN 1/3 OF ROOT SYSTEM SHOULD BE PRUNED DURING A YEAR. A CERTIFIED TREE EXPERT OR ARBORIST SHALL PERFORM THIS WORK.
6. INSECT AND DISEASE CONTROL
   - 6.1. THE CONTROL OF INSECTS AND DISEASE ASSOCIATED WITH ALL PLANTING AREAS SHOULD ALWAYS BE A MAINTENANCE PRIORITY. ALL PLANTINGS, INCLUDING EXISTING MATURE TREES, SHOULD BE PERIODICALLY INSPECTED FOR INSECT OR DISEASE INFESTATION. METHODS UTILIZED TO CONTROL INSECT AND DISEASE MAY RANGE FROM SPRAYING AND PRUNING TO PLANT REMOVAL. CERTIFIED AND TRAINED PERSONNEL SHOULD ALWAYS PERFORM THIS TASK. SAFETY AND CONTROL SHOULD ALWAYS BE OF PRIME CONCERN.
7. RENOVATION
   - 7.1. RENOVATION INCLUDES THE RESEEDING OR REPLANTING OF LANDSCAPE AREAS DAMAGED, DESTROYED OR FAILING DUE TO INSECTS, DISEASE, WEATHER OR PHYSICAL DAMAGE.
   - 7.2. LAWN: ALL AREAS WHERE SOIL HAS BEEN EXPOSED SHOULD BE RENOVATED DURING THE NEXT PLANTING SEASON. PROPER HORTICULTURAL AND SOIL EROSION PREVENTION METHODS SHOULD BE UTILIZED. IF SOIL EROSION HAS OCCURRED, THE AREA SHOULD BE REPAIRED. A SEED MIXTURE COMPATIBLE TO EXISTING PLANTINGS AND CONDITIONS SHOULD ALWAYS BE UTILIZED.
   - 7.3. PLANTINGS:ALL PLANTINGS WHICH ARE DEAD, DAMAGED OR DESTROYED SHOULD BE REPLACED BY THE END OF THE NEXT PLANTING SEASON. A FAILING, DAMAGED OR DESTROYED LANDSCAPE SCREEN OR BUFFER MUST BE RENOVATED OR REPLACED WITHIN A REASONABLE AMOUNT OF TIME BUT NOT TO EXCEED THE SUBSEQUENT GROWING SEASON.
8. SITE AMENITIES
   - 8.1. BENCHES, PATHS, BICYCLE RACKS, TRASH RECEPTACLES AND SIGNS SHOULD BE INSPECTED AT LEAST TWICE A YEAR, MARCH AND AUGUST, TO DETERMINE THEIR CONDITION. ANY DAMAGED, WORN OR UNSAFE CONDITION SHOULD BE RECTIFIED IMMEDIATELY.
9. PAVED SURFACES
   - 9.1. ALL PAVED SURFACES, CONCRETE SIDEWALKS, ASPHALT PAVEMENT AND DECORATIVE PAVEMENT MUST BE INSPECTED ON A REGULAR BASIS, A MINIMUM OF ONCE PER MONTH.
   - 9.2. ANY TRASH, STAINS, OR OBSTRUCTIONS MUST BE REMOVED IMMEDIATELY. PAVEMENTS SHOULD BE INSPECTED FOR DAMAGE, CRACKS, POT HOLES, AND RETURNED TO THEIR ORIGINAL CONDITION. SNOW SHOULD BE REMOVED DURING AND FOLLOWING EVERY STORM. SIDEWALKS AND PARKING AREAS MUST BE KEPT CLEAR OF ICE AND SNOW DURING BUSINESS HOURS.

ADA ACCESSIBILITY NOTES

GENERAL NOTES:

1. AMERICANS WITH DISABILITIES ACT STANDARDS FOR ACCESSIBLE DESIGN (ADAAG - 1991 STANDARDS) AS WELL AS APPLICABLE STATE AND LOCAL LAWS & REGULATIONS.
2. IT IS ESSENTIAL THAT CONTRACTORS ARE AWARE OF THE SITE ACCESSIBILITY REQUIREMENTS. LANDCORE ENGINEERING CONSULTANTS HAS DEVELOPED THESE NOTES AND DETAILS TO ASSURE THAT CONTRACTORS ARE AWARE OF THE REQUIREMENTS AT THE POINT IN TIME WHEN THEY ARE BIDDING THE PROJECT. IN ADDITION, LANDCORE ENGINEERING CONSULTANTS HAS MADE A POINT IN THESE NOTES AND DETAILS, AS WELL AS IN OUR DRAWINGS, TO PROVIDE SLOPES / GRADES AND DIMENSIONS THAT COMPLY WITH ADAAG AS WELL AS APPLICABLE STATE AND LOCAL LAWS AND REGULATIONS, LATEST EDITIONS. IF THESE SLOPES / GRADES AND DIMENSIONS ARE NOT ACHIEVABLE, THE CONTRACTOR IS REQUIRED TO CONTACT THE OWNER IMMEDIATELY AND BEFORE MOVING FORWARD WITH THE WORK.
3. THE CONTRACTOR SHALL NOTIFY LANDCORE ENGINEERING CONSULTANTS IMMEDIATELY OF ANY CONFLICT BETWEEN THESE NOTES AND DETAILS AND OTHER PROJECT DRAWINGS, WHETHER BY LANDCORE ENGINEERING CONSULTANTS OR OTHERS. THE CONTRACTOR SHALL NOT PROCEED WITH THE WORK FOR WHICH THE ALLEGED CONFLICT HAS BEEN DISCOVERED UNTIL SUCH ALLEGED CONFLICT HAS BEEN RESOLVED. NO CLAIM SHALL BE MADE BY THE CONTRACTOR FOR DELAY DAMAGES AS A RESULT OF RESOLUTION OF ANY SUCH CONFLICT(S).
4. THESE ACCESSIBILITY NOTES AND DETAILS ARE INTENDED TO DEPICT SLOPE AND DIMENSIONAL REQUIREMENTS ONLY. REFER TO SIDEWALK, CURBING, AND PAVEMENT DETAILS FOR ADDITIONAL INFORMATION.

ACCESSIBLE ROUTE NOTES:

1. AT LEAST ONE ACCESSIBLE ROUTE SHALL BE PROVIDED WITHIN THE SITE FROM ACCESSIBLE PARKING SPACES AND ACCESSIBLE PASSENGER LOADING ZONES; PUBLIC STREETS OR SIDEWALKS; AND PUBLIC TRANSPORTATION STOPS TO THE ACCESSIBLE BUILDING OR FACILITY THEY SERVE.
2. AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ACCESSIBLE BUILDINGS, ACCESSIBLE FACILITIES, ACCESSIBLE ELEMENTS, AND ACCESSIBLE SPACES THAT ARE ON THE SAME SITE.
3. WALKING SURFACES SHALL HAVE A MAXIMUM RUNNING SLOPE OF 5.0% AND A MAXIMUM CROSS SLOPE OF 2.0%.
4. ANY WALKING SURFACE WITH A RUNNING SLOPE GREATER THAN 5.0% IS A RAMP AND SHALL COMPLY WITH THE GUIDELINES FOR RAMPS OR CURB RAMPS.
5. TRANSITIONS BETWEEN RAMPS, WALKS, LANDINGS, GUTTERS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT VERTICAL CHANGES (1/4 INCH MAXIMUM VERTICAL CHANGE IN LEVEL).
6. FLOOR SURFACES SHALL BE STABLE, FIRM AND SLIP RESISTANT.
7. THE MINIMUM CLEAR WIDTH SHALL BE THIRTY-TWO (32) INCHES FOR A ROUTE SEGMENT LENGTH LESS THAN TWENTY-FOUR (24) INCHES. CONSECUTIVE SEGMENTS OF THIRTY-TWO (32) INCHES IN WIDTH MUST BE SEPARATED BY A ROUTE SEGMENT FORTY-EIGHT (48) INCHES MINIMUM IN LENGTH AND THIRTY-SIX (36) INCHES MINIMUM IN WIDTH.
8. THE MINIMUM CLEAR WIDTH SHALL BE THIRTY-SIX (36) INCHES FOR A ROUTE SEGMENT LENGTH GREATER THAN TWENTY-FOUR (24) INCHES.
9. WHERE AN ACCESSIBLE ROUTE MAKES A 180 DEGREE TURN AROUND AN OBJECT THAT IS LESS THAN FORTY-EIGHT (48) INCHES IN WIDTH, CLEAR WIDTH SHALL BE FORTY-TWO (42) INCHES MINIMUM APPROACHING THE TURN, FORTY-EIGHT (48) INCHES MINIMUM DURING THE TURN, AND FORTY-TWO (42) INCHES MINIMUM LEAVING THE TURN. THE CLEAR WIDTH APPROACHING AND LEAVING THE TURN MAY BE THIRTY-SIX (36) INCHES MINIMUM WHEN THE CLEAR WIDTH AT THE TURN IS SIXTY (60) INCHES MINIMUM.
10. AN ACCESSIBLE ROUTE WITH A CLEAR WIDTH LESS THAN SIXTY (60) INCHES SHALL PROVIDE PASSING SPACES AT INTERVALS OF TWO HUNDRED (200) FEET MAXIMUM. PASSING SPACES SHALL BE EITHER A SIXTY (60) INCH MINIMUM BY SIXTY (60) INCH MINIMUM SPACE; OR AN INTERSECTION OF TWO (2) WALKING SURFACES THAT PROVIDE A COMPLIANT T-SHAPED TURNING SPACE, PROVIDED THE BASE AND ARMS OF THE T-SHAPED SPACE EXTEND FORTY-EIGHT (48) INCHES MINIMUM BEYOND THE INTERSECTION.
11. DOORS, DOORWAYS AND GATES THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH ADAAG AND PENNSYLVANIA UNIFORM CONSTRUCTION CODE REQUIREMENTS.
12. DIRECTIONAL SIGNAGE INDICATING THE ROUTE TO THE NEAREST ACCESSIBLE BUILDING ENTRANCE SHALL BE PROVIDED AT INACCESSIBLE BUILDING ENTRANCES.
13. WHERE POSSIBLE, DRAINAGE INLETS SHALL NOT BE LOCATED ON AN ACCESSIBLE ROUTE IN THE EVENT THAT A DRAINAGE INLET MUST BE LOCATED ON AN ACCESSIBLE ROUTE, THE GRATE SHALL COMPLY WITH ADAAG REQUIREMENTS.

RAMP NOTES:

1. ANY PART OF AN ACCESSIBLE ROUTE WITH A RUNNING SLOPE GREATER THAN 5% SHALL BE CONSIDERED A RAMP.
2. THE MAXIMUM RUNNING SLOPE FOR A RAMP SHALL BE 8.33% AND THE MAXIMUM CROSS SLOPE SHALL BE 2.0%.
3. THE CLEAR WIDTH OF A RAMP RUN SHALL BE THIRTY-SIX (36) INCHES MINIMUM. WHERE HANDRAILS ARE PROVIDED ON THE RAMP RUN, THE CLEAR WIDTH SHALL BE MEASURED BETWEEN THE HANDRAILS.
4. THE RISE FOR ANY RAMP RUN SHALL BE THIRTY (30) INCHES MAXIMUM.
5. LANDINGS SHALL BE PROVIDED AT THE TOP AND BOTTOM OF RAMPS. LANDINGS SHALL HAVE A SLOPE NOT STEEPER THAN 2.0% IN ANY DIRECTION. THE LANDING CLEAR WIDTH SHALL BE AT LEAST AS WIDE AS THE WIDEST RAMP RUN LEADING TO THE LANDING. THE LANDING CLEAR LENGTH SHALL BE SIXTY (60) INCHES LONG MINIMUM. RAMPS THAT CHANGE DIRECTION BETWEEN RUNS AT LANDINGS SHALL HAVE A CLEAR LANDING OF SIXTY (60) INCHES BY SIXTY (60) INCHES MINIMUM.
6. RAMP RUNS WITH A RISE GREATER THAN SIX (6) INCHES OR A HORIZONTAL PROJECTION GREATER THAN SEVENTY-TWO (72) INCHES SHALL HAVE HANDRAILS ON BOTH SIDES COMPLYING WITH ADAAG AND PENNSYLVANIA UNIFORM CONSTRUCTION CODE REQUIREMENTS.
7. FLOOR SURFACES OF RAMPS AND LANDINGS SHALL BE STABLE, FIRM AND SLIP RESISTANT.
8. EDGE PROTECTION COMPLYING WITH ADAAG AND PENNSYLVANIA UNIFORM CONSTRUCTION CODE REQUIREMENTS SHALL BE PROVIDED ON EACH SIDE OF RAMP RUNS AND ON EACH SIDE OF RAMP LANDINGS.
9. WHERE DOORWAYS ARE LOCATED ADJACENT TO A RAMP LANDING, MANEUVERING CLEARANCES REQUIRED BY ADAAG AND PENNSYLVANIA UNIFORM CONSTRUCTION CODE REQUIREMENTS SHALL BE PERMITTED TO OVERLAP THE REQUIRED LANDING AREA. WHERE DOORS THAT ARE SUBJECT TO LOCKING ARE ADJACENT TO A RAMP LANDING, LANDINGS SHALL BE SIZED TO PROVIDE A COMPLIANT TURNING SPACE.

CURB RAMP NOTES:

1. THE MAXIMUM RUNNING SLOPE OF A CURB RAMP SHALL BE 8.33% AND THE MAXIMUM CROSS SLOPE SHALL BE 2.0%.
2. COUNTER SLOPES OF ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT TO THE CURB RAMP SHALL NOT BE STEEPER THAN 5%. THE ADJACENT SURFACES AT TRANSITIONS AT CURB RAMPS TO WALKS, GUTTERS AND STREETS SHALL BE AT THE SAME LEVEL.
3. THE CLEAR WIDTH OF A CURB RAMP SHALL BE SIXTY (60) INCHES MINIMUM, EXCLUSIVE OF FLARED SIDES, IF PROVIDED.
4. LANDINGS SHALL BE PROVIDED AT THE TOP OF CURB RAMPS. THE CLEAR LENGTH OF THE LANDING SHALL BE THIRTY-SIX (36) INCHES MINIMUM. THE CLEAR WIDTH OF THE LANDING SHALL BE AT LEAST AS WIDE AS THE CURB RAMP, EXCLUDING FLARED SIDES, LEADING TO THE LANDING. LANDINGS SHALL HAVE A SLOPE NOT STEEPER THAN 2% IN ANY DIRECTION.
5. IF A CURB RAMP IS LOCATED WHERE PEDESTRIANS MUST WALK ACROSS THE RAMP, OR WHERE IT IS NOT PROTECTED BY HANDRAILS OR GUARDRAILS, IT SHALL HAVE FLARED SIDES.
6. WHERE PROVIDED, CURB RAMP FLARES SHALL NOT EXCEED 10%. IF THE CLEAR LENGTH OF THE LANDING IS LESS THAN FORTY-EIGHT (48) INCHES THAN THE SLOPE OF THE FLARED SIDES SHALL NOT EXCEED 8.33%.
7. CURB RAMPS AND THE FLARED SIDES OF CURB RAMPS SHALL BE LOCATED SO THAT THEY DO NOT PROJECT INTO VEHICULAR TRAFFIC LANES, PARKING SPACES OR PARKING ACCESS AISLES. CURBS AT MARKED CROSSINGS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.
8. CURB RAMPS SHALL BE LOCATED OR PROTECTED TO PREVENT THEIR OBSTRUCTION BY PARKED VEHICLES.
9. CURB RAMPS SHALL HAVE A TWENTY-FOUR (24) INCH DEEP DETECTABLE WARNING COMPLYING WITH ADAAG, EXTENDING THE FULL WIDTH OF THE RAMP. REFER TO DETECTABLE WARNING DETAILS AND NOTES FOR PLACEMENT, ORIENTATION AND NOTES.
10. FLOOR SURFACES OF CURB RAMPS SHALL BE DEEP GROOVED, ½ INCH WIDE BY ¼ INCH DEEP, ONE (1) INCH CENTERS TRANSVERSE TO THE RAMP.
11. WHERE PROVIDED, STOP LINES SHALL BE LOCATED IN ADVANCE OF CURB RAMP.
12. WHERE PROVIDED, PEDESTRIAN ACTIVATED SIGNALS SHALL BE LOCATED ADJACENT TO THE SIDEWALK AND NOT ON THE SIDEWALK.
13. WHERE PROVIDED, DRAINAGE INLETS SHALL BE LOCATED UPSTREAM OF CURB RAMPS AND NOT IN THE RAMP AREA.
14. CURB RAMP TYPE AND LOCATION ARE PER PLAN.

PARKING SPACE NOTES:

1. ACCESSIBLE PARKING SPACES SHALL BE LOCATED ON THE SHORTEST ACCESSIBLE ROUTES OF TRAVEL FROM ADJACENT PARKING TO AN ACCESSIBLE BUILDING ENTRANCE.
2. ACCESSIBLE PARKING SPACES SHALL BE AT LEAST NINETY-SIX (96) INCHES WIDE. ACCESS AISLES SHALL BE 60 INCHES WIDE. ONE OF SIX ACCESSIBLE SPACES SHOULD PROVIDE A VAN ACCESSIBLE AISLE. THE AISLE SHOULD BE 96 INCHES WIDE (OR ACCESSIBLE SPACE IS 11 FEET AND ACCESS AISLE IS FIVE FEET). WHERE PARKING SPACES AND ACCESS AISLES ARE MARKED WITH LINES, THE WIDTH MEASUREMENTS SHALL BE MADE FROM CENTERLINE OF THE MARKINGS. WHERE PARKING SPACES OR ACCESS AISLES ARE NOT ADJACENT TO ANOTHER PARKING SPACE OR ACCESS AISLES, MEASUREMENTS SHALL BE PERMITTED TO INCLUDE THE FULL WIDTH OF THE LINE DEFINING THE PARKING SPACE OR ACCESS AISLE.
3. PARKING ACCESS AISLES SHALL BE PART OF AN ACCESSIBLE ROUTE TO THE BUILDING OR FACILITY ENTRANCE AND SHALL COMPLY WITH PROVISIONS FOR ACCESSIBLE ROUTES. MARKED CROSSINGS SHALL BE PROVIDED WHERE THE ACCESSIBLE ROUTE MUST CROSS VEHICULAR TRAFFIC LANES. WHERE POSSIBLE, IT IS PREFERABLE THAT THE ACCESSIBLE ROUTE NOT PASS BEHIND PARKED VEHICLES.
4. TWO (2) ACCESSIBLE PARKING SPACES MAY SHARE A COMMON ACCESS AISLE.
5. ACCESS AISLES SHALL EXTEND THE FULL LENGTH OF THE PARKING SPACE THEY SERVE.
6. ACCESS AISLES SHALL BE MARKED SO AS TO DISCOURAGE PARKING IN THEM.
7. ACCESS AISLES SHALL NOT OVERLAP THE VEHICULAR WAY. ACCESS AISLES SHALL BE PERMITTED TO BE PLACED ON EITHER SIDE OF THE PARKING SPACE EXCEPT FOR ANGLED VAN PARKING SPACES WHICH SHALL HAVE ACCESS AISLES LOCATED ON THE PASSENGER SIDE OF THE PARKING SPACES.
8. FLOOR SURFACES OF PARKING SPACES AND ACCESS AISLES SERVING THEM SHALL BE STABLE, FIRM AND SLIP RESISTANT. ACCESS AISLES SHALL BE AT THE SAME LEVEL AS THE PARKING SPACES THEY SERVE. CHANGES IN LEVEL ARE NOT PERMITTED.
9. PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 2.0% IN ALL DIRECTIONS.
10. PARKED VEHICLE OVERHANGS SHALL NOT REDUCE THE REQUIRED CLEAR WIDTH OF AN ACCESSIBLE ROUTE.
11. PARKING SPACES FOR VANS AND ACCESS AISLES AND VEHICULAR ROUTES SERVING THEM SHALL PROVIDE A VERTICAL CLEARANCE OF NINETY-EIGHT (98) INCHES MINIMUM. SIGNS SHALL BE PROVIDED AT ENTRANCES TO PARKING FACILITIES INFORMING DRIVERS OF CLEARANCES AND THE LOCATION OF VAN ACCESSIBLE PARKING SPACES.
12. EACH ACCESSIBLE PARKING SPACE SHALL BE PROVIDED WITH SIGNAGE DISPLAYING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY, THE PA PENALTY SIGN AND VAN ACCESSIBLE SPACES SHALL HAVE SIGNAGE STATING "VAN ACCESSIBLE". SIGNS SHALL BE INSTALLED SO THAT THE BOTTOM OF SIGNS ARE MOUNTED NO LOWER THAN 60 INCHES ABOVE GRADE AND SHALL NOT INTERFERE WITH AN ACCESSIBLE ROUTE FROM AN ACCESS AISLE.

PASSENGER LOADING ZONE NOTES:

1. PASSENGER LOADING ZONES SHALL PROVIDE VEHICULAR PULL-UP SPACE NINETY-SIX (96) INCHES WIDE MINIMUM AND TWENTY (20) FEET LONG MINIMUM.
2. PASSENGER LOADING ZONES SHALL PROVIDE A CLEARLY MARKED ACCESS AISLE THAT IS SIXTY (60) INCHES WIDE MINIMUM AND EXTENDS THE FULL LENGTH OF THE VEHICLE PULL-UP SPACE THEY SERVE.
3. ACCESS AISLE SHALL ADJOIN AN ACCESSIBLE ROUTE AND NOT OVERLAP THE VEHICULAR WAY.
4. VEHICLE PULL-UP SPACES AND ACCESS AISLES SERVING THEM SHALL BE LEVEL WITH SURFACE SLOPES NO EXCEEDING 2.0% IN ALL DIRECTIONS. ACCESS AISLES SHALL BE AT THE SAME LEVEL AS THE VEHICLE PULL-UP SPACE THEY SERVE. CHANGES IN LEVEL ARE NOT PERMITTED.
5. FLOOR SURFACES OF VEHICLE PULL-UP SPACES AND ACCESS AISLES SERVING THEM SHALL BE STABLE, FIRM AND SLIP RESISTANT.
6. VEHICLE PULL-UP SPACES, ACCESS AISLES SERVING THEM AND A VEHICULAR ROUTE FROM AN ENTRANCE TO THE PASSENGER LOADING ZONE, AND FROM THE PASSENGER LOADING ZONE TO A VEHICULAR EXIT SERVING THEM, SHALL PROVIDE A VERTICAL CLEARANCE OF ONE HUNDRED FOURTEEN (114) INCHES MINIMUM.

ACCESSIBLE ENTRANCE NOTES:

1. ACCESSIBLE ENTRANCES SHALL BE PROVIDED AS REQUIRED BY ADAAG AS WELL AS APPLICABLE STATE AND LOCAL LAWS & REGULATIONS.
2. ENTRANCE DOORS, DOORWAYS AND GATES SHALL COMPLY WITH ADAAG AS WELL AS APPLICABLE STATE AND LOCAL LAWS & REGULATIONS AND SHALL BE ON AN ACCESSIBLE ROUTE.

SITE PLAN NOTES

(AS APPLICABLE TO THIS PROJECT)

1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL TOWNSHIP / CITY / COUNTY REGULATIONS AND CODES AND OSHA STANDARDS.
2. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF VESTIBULES, SLOPE PAVING, SIDEWALKS, EXIT PORCHES, TRUCK DOCKS, PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
3. ALL DISTURBED AREAS ARE TO RECEIVE SIX INCHES OF TOPSOIL, SEED, MULCH AND WATER UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED.
4. ALL DIMENSIONS AND RADII ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
5. EXISTING STRUCTURES WITHIN CONSTRUCTION LIMITS ARE TO BE ABANDONED, REMOVED OR RELOCATED AS NECESSARY. ALL COSTS SHALL BE INCLUDED IN BASE BID.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS AND POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES' SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN BASE BID.
7. THE SITE WORK FOR THIS PROJECT SHALL MEET OR EXCEED MUNICIPAL STANDARDS.
8. THIS SITE SHALL BE SERVICED BY PUBLIC WATER AND SANITARY SEWER.
9. BY APPROVAL OF THIS PLAN THE MUNICIPALITY HAS NEITHER CONFIRMED NOR DENIED THE EXISTENCE AND/OREXTEND OF ANY WETLAND AREAS WETHER OR NOT DELINEATED ON THE SAID PLAN AND ANY ENCROACHMENT THEREON FOR ANY REASON WHATSOEVER SHALL BE THE SOLE RESPONSIBILITY OF THE DEVELOPER, HIS HEIRS AND ASSIGNS AND SHALL BE SUBJECT TO THE JURISDICTION OF THE ARMY CORPS OF ENGINEERS AND/OR THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES AS THE SAID ENCROACHMENT SHALL CONFORM TO THE RULES AND REGULATIONS OF THE JURISDICTIONAL AGENCIES.
10. WEST CHESTER PIKE AND LANGFORD ROAD INTERSECTION IMPROVEMENTS ARE SHOWN ON THIS PLAN FOR REFERENCE PURPOSES ONLY (NOT CONSTRUCTION) AND HAVE BEEN TAKEN FROM APPROVED HOP DRAWINGS FOR CONSTRUCTION OF SR0003, SECTION GED, DATED 2017-09-21, AS PREPARED BY THE BURNS GROUP FOR MARPLE ASSOCIATES, LP.

GRADING, DRAINAGE and UTILITY NOTES

(AS APPLICABLE TO THIS PROJECT)

1. LOCATIONS OF ALL EXISTING AND PROPOSED SERVICES ARE APPROXIMATE AND MUST BE CONFIRMED INDEPENDENTLY WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION OR EXCAVATION. SANITARY SEWER AND ALL OTHER UTILITY SERVICE CONNECTION POINTS SHALL BE CONFIRMED INDEPENDENTLY BY THE CONTRACTOR IN FIELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ALL DISCREPANCIES SHALL BE REPORTED IMMEDIATELY IN WRITING TO THE ENGINEER. CONSTRUCTION SHALL COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND UTILITIES SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. ALL 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. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION AT NO COST TO THE OWNER.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE THE SPECIFICATIONS OR THE RELATIVE 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 ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
4. DEFINE AND LOCATE VERTICALLY AND HORIZONTALLY ALL ACTIVE UTILITY AND/OR SERVICE SYSTEMS THAT ARE TO BE REMOVED. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN ALL ACTIVE SYSTEMS THAT ARE NOT BEING REMOVED/ RELOCATED DURING SITE ACTIVITY.
5. THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENTS AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION 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.
6. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF SITE PLAN DOCUMENTS AND ARCHITECTURAL DESIGN FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS, GREASE TRAP REQUIREMENTS/DETAILS, DOOR ACCESS, AND EXTERIOR GRADING. THE UTILITY SERVICE SIZES ARE TO BE DETERMINED BY THE ARCHITECT. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES / SERVICES WITH THE INDIVIDUAL COMPANIES, TO AVOID CONFLICTS AND ENSURE PROPER DEPTHS ARE ACHIEVED. THE JURISDICTION UTILITY REQUIREMENTS SHALL ALSO BE MET, AS WELL AS COORDINATING THE UTILITY TIE-INS/CONNECTIONS PRIOR TO CONNECTION TO THE EXISTING UTILITY/SERVICE. WHERE CONFLICTS EXIST WITH THESE SITE PLANS, ENGINEER IS TO BE NOTIFIED PRIOR TO CONSTRUCTION TO RESOLVE SAME.
7. WATER SERVICE MATERIALS, BURIAL DEPTH, AND COVER REQUIREMENTS SHALL BE SPECIFIED BY THE LOCAL UTILITY AUTHORITY. CONTRACTOR'S PRICE FOR WATER SERVICE SHALL INCLUDE ALL FEES AND APPURTENANCES REQUIRED BY THE AUTHORITY TO PROVIDE A COMPLETE WORKING SERVICE.
8. ALL NEW UTILITIES/SERVICES, INCLUDING ELECTRIC, TELEPHONE, CABLE TV, ETC. ARE TO BE INSTALLED UNDERGROUND. ALL NEW UTILITIES / SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE UTILITY/SERVICE PROVIDER INSTALLATION SPECIFICATIONS AND STANDARDS.
9. SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT REFERENCED IN THIS PLAN SET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING WITH SUITABLE MATERIALS AS SPECIFIED IN THE GEOTECHNICAL REPORT. ALL EXCAVATED OR FILLED AREAS SHALL BE COMPACTED AS OUTLINED IN THE GEOTECHNICAL REPORT. MOISTURE CONTENT AT TIME OF PLACEMENT SHALL BE SUBMITTED IN COMPACTION REPORT PREPARED BY A QUALIFIED GEOTECHNICAL ENGINEER, REGISTERED WITH THE STATE WHERE THE WORK IS PERFORMED, VERIFYING THAT ALL FILLED AREAS AND SUBGRADE AREAS WITHIN THE BUILDING PAD AREA AND AREAS TO BE PAVED HAVE BEEN COMPACTED IN ACCORDANCE WITH THESE PLANS AND SPECS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT. SUBBASE MATERIAL FOR SIDEWALKS, CURB, OR ASPHALT SHALL BE FREE OF ORGANICS AND OTHER UNSUITABLE MATERIALS. SHOULD SUBBASE BE DEEMED UNSUITABLE BY OWNER OR OWNER'S REPRESENTATIVE, SUBBASE IS TO BE REMOVED AND FILLED WITH APPROVED FILL MATERIAL COMPACTED AS DIRECTED BY THE GEOTECHNICAL REPORT.
10. 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.
11. THE CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST OSHA STANDARDS AND REGULATIONS, 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.
12. PAVEMENT SHALL BE SAW CUT IN STRAIGHT LINES TO THE FULL DEPTH OF THE EXISTING PAVEMENT. ALL DEBRIS FROM REMOVAL OPERATIONS SHALL BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT BE PERMITTED.
13. THE TOPS OF EXISTING MANHOLES, INLET STRUCTURES, AND SANITARY CLEANOUT TOPS SHALL BE ADJUSTED, IF REQUIRED TO MATCH PROPOSED GRADES IN ACCORDANCE WITH ALL APPLICABLE STANDARDS.
14. THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF EXISTING TOPOGRAPHIC INFORMATION AND UTILITY INVERT ELEVATIONS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. CONTRACTOR TO ENSURE 0.75% MINIMUM SLOPE AGAINST ALL ISLANDS, GUTTERS, AND CURBS; 1.0% ON ALL CONCRETE SURFACES; AND 1.0% MINIMUM ON ASPHALT, TO PREVENT PONDING. ANY DISCREPANCIES THAT MAY AFFECT THE PUBLIC SAFETY OR PROJECT COST MUST BE IDENTIFIED TO THE ENGINEER IN WRITING IMMEDIATELY. PROCEEDING WITH CONSTRUCTION WITHOUT NOTIFICATION IS DONE SO AT THE CONTRACTOR'S OWN RISK.
15. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 6" ABOVE EXISTING LOCAL ASPHALT GRADE UNLESS OTHERWISE NOTED. FIELD ADJUST TO CREATE A MINIMUM OF 0.75% GUTTER GRADE ALONG CURB FACE. ENGINEER TO APPROVE FINAL CURBING CUT SHEETS PRIOR TO INSTALLATION.
16. REFER TO SITE PLAN FOR ADDITIONAL NOTES.
17. IN CASE OF DISCREPANCIES BETWEEN PLANS OR RELATIVE TO OTHER PLANS, THE SITE PLAN WILL TAKE PRECEDENCE. IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY CONFLICTS.
18. CONTRACTOR SHALL BE REQUIRED TO SECURE ALL NECESSARY PERMITS AND APPROVALS FOR ALL OFF-SITE MATERIAL SOURCES AND DISPOSAL FACILITIES. CONTRACTOR SHALL SUPPLY A COPY OF APPROVALS TO ENGINEER AND OWNER PRIOR TO INITIATING WORK.
19. THE PROPOSED ON-SITE STORMWATER MANAGEMENT FACILITIES SHALL BE OWNED AND MAINTAINED BY THE APPLICANT.
20. ALL STORMWATER PIPING THAT IS INSTALLED WITHIN THE REINFORCING ZONE OF THE PROPOSED RETAINING WALLS MUST BE INSTALLED WITH A WATER TIGHT SEAL.
21. ELECTRIC, CABLE & TELEPHONE CONDUIT IS TO BE DESIGNED AND SUBMITTED BY LOCAL UTILITY SERVICE COMPANIES.
22. ALL STORM SEWER PIPE JOINTS SHALL BE WATERTIGHT.
23. HIGH DENSITY POLYETHYLENE (HDPE) PIPES SHALL BE ADS N-12 DUAL WALL, SMOOTH LINED OR EQUIVALENT, UNLESS OTHERWISE SPECIFIED.
24. REINFORCED CONCRETE PIPES (RCP) SHALL BE CLASS III, UNLESS OTHERWISE SPECIFIED.

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GENERAL NOTES

(AS APPLICABLE TO THIS PROJECT)

1. SPECIFIC RESOURCES, TECHNICAL REPORTS, DESIGN DOCUMENTS, ET. AL. RELATED TO THIS PROJECT INCLUDE (BUT MAY NOT BE LIMITED TO) THE FOLLOWING:
   - 1.1. SURVEY
   - 1.2. GEOTECHNICAL REPORTS
   - 1.3. ENVIRONMENTAL REPORTS
   - 1.4. WETLANDS REPORTS
   - 1.5. STORMWATER MANAGEMENT REPORT
   - 1.6. POST CONSTRUCTION STORMWATER MANAGEMENT REPORT
   - 1.7. EROSION AND SEDIMENT CONTROL NARRATIVE
2. CONTRACTOR IS RESPONSIBLE FOR OBTAINING THESE DOCUMENTS AND FAMILIARIZING HIMSELF WITH THE SAME FOR APPLICATION BOTH PRIOR TO AND DURING CONSTRUCTION.
3. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO THE THE REFERENCED SURVEYOR'S BENCHMARK AND MUST BE VERIFIED BY THE GENERAL CONTRACTOR PRIOR TO GROUNDBREAK.
4. ALL HANDICAP PARKING SPACES SHALL BE CONSTRUCTED TO MEET ADA REQUIREMENTS.
5. 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.
6. 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.
7. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE REQUIREMENTS AND STANDARDS OF THE LOCAL GOVERNING AUTHORITY.
8. THE GEOTECHNICAL REPORT AND RECOMMENDATIONS SET FORTH THEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND IN THE 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 THE GEOTECHNICAL REPORT AND THE PLANS, ETC.
9. THE PROPERTY SURVEY SHALL BE CONSIDERED A PART OF THESE PLANS.
10. THESE PLANS ARE BASED ON INFORMATION PROVIDED TO LANDCORE ENGINEERING CONSULTANTS, PC. AT THE TIME OF PREPARATION. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND NOTIFY LANDCORE ENGINEERING CONSULTANTS, PC. IF ACTUAL SITE CONDITIONS DIFFER FROM THOSE SHOWN ON THE PLAN, OR IF THE PROPOSED WORK WOULD BE INHIBITED BY ANY OTHER SITE FEATURES.
11. 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 RE-DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
12. 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.
13. DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE AND ALL UNSUITABLE EXCAVATED MATERIAL AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, COUNTY AND TOWN LOCAL LAWS AND APPLICABLE CODES.
14. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING REQUIRED DURING EXCAVATION (TO BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS) AND ANY ADDITIONAL PROVISIONS TO ASSURE STABILITY OF CONTIGUOUS STRUCTURES, AS FIELD CONDITIONS DICTATE.
15. CONTRACTOR IS TO EXERCISE EXTREME CARE WHEN PERFORMING ANY WORK ADJACENT TO PAVEMENT, STRUCTURES, ETC. TO REMAIN. CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING THE APPROPRIATE MEASURES AS NECESSARY TO ENSURE THE STRUCTURE STABILITY OF SIDEWALKS AND PAVEMENT TO REMAIN, AND TO PROVIDE A SAFE WORK AREA.
16. CONTRACTOR IS RESPONSIBLE FOR REPAIRING THE DAMAGE DONE TO ANY EXISTING ITEM DURING CONSTRUCTION SUCH AS BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL REPLACE ALL SIGNAL INTERCONNECT CABLE, CONDUITS AND ANY UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION. REPAIR SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS. CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGE AND NOTIFY CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION START.
17. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS INDICATED IN SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS, DETAILS AND / OR GEOTECHNICAL REPORT.
18. 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. 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 WHEN A CONFLICT IS IDENTIFIED.
19. ENGINEER OF RECORD IS NOT RESPONSIBLE FOR JOB SITE SAFETY NOR HAS HE BEEN RETAINED FOR SUCH PURPOSES.
20. ALL CONTRACTORS MUST CARRY STATUTORY WORKER'S COMPENSATION INSURANCE, EMPLOYER'S LIABILITY INSURANCE AND APPROPRIATE LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE (CGL). ALL CONTRACTORS MUST HAVE THEIR CGL POLICIES ENDORSED TO NAME LANDCORE ENGINEERING CONSULTANTS, PC. AND ITS SUBCONSULTANTS AS ADDITIONAL INSURED AND TO PROVIDE CONTRACTUAL LIABILITY COVERAGE SUFFICIENT TO INSURE THE HOLD HARMLESS AND INDEMNITY OBLIGATIONS ASSUMED BY THE CONTRACTORS. ALL CONTRACTORS MUST FURNISH LANDCORE ENGINEERING CONSULTANTS, P.C. WITH CERTIFICATIONS OF INSURANCE AS EVIDENCE OF THE REQUIRED INSURANCE PRIOR TO COMMENCING WORK AND UPON RENEWAL OF EACH POLICY DURING THE ENTIRE PERIOD OF CONSTRUCTION. IN ADDITION, ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY THE LAW, INDEMNIFY AND HOLD HARMLESS LANDCORE ENGINEERING CONSULTANTS, PC. AND ITS SUBCONSULTANTS FROM AND AGAINST ANY DAMAGES, LIABILITIES OR COSTS, INCLUDING REASONABLE ATTORNEYS' FEES AND DEFENSE COSTS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE PROJECT, INCLUDING ALL CLAIMS BY EMPLOYEES OF THE CONTRACTORS.
21. NEITHER THE PROFESSIONAL ACTIVITIES OF LANDCORE ENGINEERING CONSULTANTS, P.C. NOR THE PRESENCE OF LANDCORE ENGINEERING CONSULTANTS, P.C. OR ITS EMPLOYEES AND SUBCONSULTANTS AT A CONSTRUCTION/PROJECT SITE, SHALL RELIEVE THE GENERAL 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 AND SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. LANDCORE ENGINEERING CONSULTANTS, P.C. AND ITS PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PROGRAMS OR PROCEDURES. THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOBSITE SAFETY. LANDCORE ENGINEERING CONSULTANTS, P.C. SHALL BE INDEMNIFIED BY THE GENERAL CONTRACTOR AND SHALL BE MADE ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE.
22. LANDCORE ENGINEERING CONSULTANTS, P.C. SHALL REVIEW AND ACCEPT 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 CONCEPT AND THE INFORMATION SHOWN, NOT CONSTRUCTION MEANS OR METHODS, COORDINATION OF THE WORK WITH OTHER TRADES, OR CONSTRUCTION SAFETY PRECAUTIONS, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. LANDCORE ENGINEERING CONSULTANTS' REVIEW SHALL BE CONDUCTED WITH REASONABLE PROMPTNESS WHILE ALLOWING SUFFICIENT TIME TO PERMIT ADEQUATE REVIEW. REVIEW OF A SPECIFIC ITEM SHALL NOT INDICATE THAT LANDCORE ENGINEERING CONSULTANTS, P.C. HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. LANDCORE ENGINEERING CONSULTANTS, P.C. SHALL NOT BE RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS NOT BROUGHT TO THE ATTENTION OF LANDCORE ENGINEERING CONSULTANTS, P.C. IN WRITING BY THE CONTRACTOR. LANDCORE ENGINEERING CONSULTANTS, P.C. SHALL NOT BE REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.
23. IN AN EFFORT TO RESOLVE ANY CONFLICTS THAT ARISE DURING THE DESIGN AND CONSTRUCTION OF THE PROJECT OR FOLLOWING THE COMPLETION OF THE PROJECT, LANDCORE ENGINEERING CONSULTANTS, P.C. AND THE CONTRACTOR MUST AGREE THAT ALL DISPUTES BETWEEN THEM ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE PROJECT SHALL BE SUBMITTED TO NONBINDING MEDIATION UNLESS THE PARTIES MUTUALLY AGREE OTHERWISE.
24. THE CONTRACTOR MUST INCLUDE A MEDIATION PROVISION IN ALL AGREEMENTS WITH INDEPENDENT SUBCONTRACTORS AND CONSULTANTS RETAINED FOR THE PROJECT AND TO REQUIRE ALL INDEPENDENT CONTRACTORS AND CONSULTANTS ALSO TO INCLUDE A SIMILAR MEDIATION PROVISION IN ALL AGREEMENTS WITH THEIR SUBCONTRACTORS, SUBCONSULTANTS, SUPPLIERS AND FABRICATORS, THEREBY PROVIDING FOR MEDIATION AS THE PRIMARY METHOD FOR DISPUTE RESOLUTION BETWEEN THE PARTIES TO ALL THOSE AGREEMENTS.
25. IF THE CONTRACTOR DEVIATES FORM THE PLANS AND SPECIFICATIONS, INCLUDING THE NOTES CONTAINED THEREON, WITHOUT FIRST OBTAINING PRIOR WRITTEN AUTHORIZATION FOR SUCH DEVIATIONS FROM THE OWNER AND ENGINEER, IT SHALL BE RESPONSIBLE FOR THE PAYMENT OF ALL COSTS TO CORRECT ANY WORK DONE. ALL FINES OR PENALTIES ASSESSED WITH RESPECT THERETO AND ALL COMPENSATORY OR PUNITIVE DAMAGES RESULTING THEREFROM. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ALL SUCH COSTS TO CORRECT ANY SUCH WORK AND FROM ALL SUCH FINES AND PENALTIES, COMPENSATION AND PUNITIVE DAMAGES AND COSTS OF ANY NATURE RESULTING THEREFROM.

DEMOLITION NOTES

(AS APPLICABLE TO THIS PROJECT)

1. LANDCORE ENGINEERING CONSULTANTS, P.C. IS NOT RESPONSIBLE FOR JOB SITE SAFETY OR SUPERVISION.
2. ALL DEMOLITION ACTIVITIES ARE TO PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AS WELL AS ALL FEDERAL, STATE AND LOCAL REGULATIONS. ANY DISCREPANCIES OR DEVIATIONS SHALL BE IDENTIFIED BY THE CONTRACTOR TO LANDCORE ENGINEERING CONSULTANTS, P.C. IN WRITING FOR RESOLUTION PRIOR TO INITIATION OF SITE ACTIVITY.
3. PRIOR TO STARTING ANY DEMOLITION, CONTRACTOR IS RESPONSIBLE TO / FOR THE FOLLOWING:
   - 3.1. ENSURING COPIES OF ALL PERMITS AND APPROVALS MUST BE MAINTAINED ON SITE AND AVAILABLE FOR REVIEW
   - 3.2. INSTALLING THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO SITE DISTURBANCE.
   - 3.3. ALL UTILITIES AND SERVICES, INCLUDING BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY SEWER , STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE. THE CONTRACTOR SHALL USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL UNDERGROUND UTILITIES.
   - 3.4. PROTECTING AND MAINTAINING IN OPERATION, ALL ACTIVE SYSTEMS THAT ARE NOT BEING REMOVED DURING THE DEMOLITION ACTIVITIES.
   - 3.5. FAMILIARIZING THEMSELVES WITH THE APPLICABLE UTILITY SERVICE PROVIDER AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION REQUIRED FOR THE PROJECT. THE CONTRACTOR SHALL PROVIDE THE OWNER WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEN TERMINATED AND ABANDONED IN ACCORDANCE WITH JURISDICTION AND UTILITY COMPANY REQUIREMENTS.
   - 3.6. COORDINATION WITH UTILITY COMPANIES REGARDING WORKING 'OFF-PEAK' HOURS OR ON WEEKENDS AS MAY BE REQUIRED TO MINIMIZE THE IMPACT OF THE AFFECTED PARTIES.
   - 3.7. A COMPLETE INSPECTION CONTAINMENTS BY A LICENSED ENVIRONMENTAL TESTING AGENCY, OF ALL BUILDINGS AND / OR STRUCTURES TO BE REMOVED. SAME SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL ENVIRONMENTAL REGULATIONS. ALL ENVIRONMENTAL WORK INCLUDING HAZARDOUS MATERIAL, SOILS, ASBESTOS OR OTHER REFERENCED OR IMPLIED HEREIN IS THE SOLE RESPONSIBILITY OF THE OWNER'S ENVIRONMENTAL CONSULTANT.
4. 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 OSHA REQUIREMENTS, TO ENSURE PUBLIC AND CONTRACTOR SAFETY.
5. THE CONTRACTOR SHALL PROVIDE ALL THE 'MEANS AND METHODS' NECESSARY TO PREVENT MOVEMENT, SETTLEMENT OR COLLAPSE OF EXISTING STRUCTURES OR ANY OTHER IMPROVEMENTS THAT ARE REMAINING ON OR OFF THE SITE. THE DEMOLITION CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS OF DAMAGE TO ALL ITEMS THAT ARE TO REMAIN AS A RESULT OF THEIR ACTIVITIES. ALL REPAIRS SHALL USE NEW MATERIAL. THE REPAIRS SHALL RESTORE THE ITEM TO THE PRE-DEMOLITION CONDITION.
6. IN THE ABSENCE OF SPECIFICATIONS, THE CONTRACTOR SHALL PERFORM EARTH MOVEMENT ACTIVITIES, DEMOLITION AND REMOVAL OF ALL FOUNDATION WALLS, FOOTINGS AND OTHER MATERIALS WITHIN THE LIMITS OF DISTURBANCE IN ACCORDANCE WITH DIRECTION BY THE OWNER'S STRUCTURAL OR GEOTECHNICAL ENGINEER.
7. EXPLOSIVES SHALL NOT BE USED WITHOUT PRIOR WRITTEN CONSENT OF BOTH THE OWNER AND APPLICABLE GOVERNMENTAL AUTHORITIES. 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.
8. 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 RIGHTS OF WAY.
9. 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.
10. DEMOLITION ACTIVITIES AND EQUIPMENT SHALL NOT USE AREAS OUTSIDE THE DEFINED PROPERTY LINE WITHOUT WRITTEN PERMISSION OF THE OWNER AND / OR APPROPRIATE GOVERNMENT AGENCY.
11. USE DUST CONTROL MEASURES TO LIMIT AIRBORNE DUST AND DIRT RISING AND SCATTERING IN THE AIR IN ACCORDANCE WITH 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.
12. CONTRACTOR IS RESPONSIBLE TO SAFEGUARD SITE AS NECESSARY TO PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE ENTRY OF UNAUTHORIZED PERSONS AT ANY TIME.
13. 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 FEDERAL, STATE, LOCAL AND JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OSHA AND OTHER SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE.
14. DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL DEMOLITION WASTES AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, COUNTY AND TOWN LAWS AND APPLICABLE CODES.
15. IN ACCORDANCE WITH STATE LAW, THE CONTRACTOR SHALL BE REQUIRED TO CALL THE BOARD OF PUBLIC UTILITIES 'ONE CALL' DAMAGE PROTECTION SYSTEM FOR UTILITY MARK OUT IN ADVANCE OF ANY EXCAVATION.
16. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING SITE IMPROVEMENTS AND UTILITIES. ALL DISCREPANCIES SHALL BE IDENTIFIED TO THE ENGINEER IN WRITING.
17. ALL EXISTING UTILITIES SHALL BE REMOVED BY CONTRACTOR IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS.
18. ALL DEMOLITION DEBRIS TO BE REMOVED BY CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

RYAN T. WHITMORE
PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

LANDCORE Engineering Consultants, P.C.

PROJECT No.: 140012
CHECKED BY: R. WHITMORE
CAD I.D.: 09_NT_140012

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: GENERAL NOTES SHEET

SCALE: (H) AS NOTED (V) -

DATE: 2017-12-22

SHEET: NT

REV. No: 0

SOILS LEGEND

Ch:	CHEWACLA SILT LOAM, HYD GROUP B / D
GeC2	GLENELG CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPE, HYD GROUP B
GeD:	GLENELG CHANNERY SILT LOAM, 15 TO 25 PERCENT SLOPE, HYD GROUP B
GeD2:	GLENELG CHANNERY SILT LOAM, 15 TO 25 PERCENT SLOPE, MODERATRELY ERODED, HYD GROUP B
MgD:	MANOR LOAM, 15 TO 25 PERCENT SLOPE, HYD GROUP B
Me:	MADE LAND, SCHIST AND GNEISS MATERIALS, HYD GROUP C
Mn:	MELVIN SILT LOAM, HYD GROUP B / D
We:	WEHADKEE SILT LOAM, HYD GROUP B / D

SEE SHEETS "NE" AND/OR "NP" FOR SOILS LIMITATIONS

KNOW WHAT'S BELOW.
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811

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WWW.PA1CALL.ORG

EXISTING CONDITIONS / DEMOLITION LEGEND

- PROPERTY LINE (PIQ)
- PROPERTY LINE (ADJOINERS)
- PROPERTY LINE (RIGHT OF WAY)
- SOIL TYPE LIMIT LINE
- EDGE OF STREAM
- FLOODPLAIN — 100 YEAR FLOODPLAIN LINE
- FLOODWAY — FLOODWAY LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- WETLAND LINE
- WETLAND AREA
- WETLAND FLAG
- EXISTING TREELINE
- TREELINE TO BE REMOVED
- PROPOSED TREELINE
- EXISTING TREE / CALIPER
- EXISTING TREE / CALIPER TO BE REMOVED
- OVERHEAD UTILITY SERVICE
- UNDERGROUND WATER SERVICE
- UNDERGROUND GAS SERVICE
- SANITARY / STORM SEWER LINE
- ITEM TO BE REMOVED (TYP)
- TEST PIT LOCATION
- EXISTING PARKING COUNT TO BE REMOVED

DATUM

VERTICAL DATUM BASED ON NAVD 1988.

EXISTING SENSITIVE RESOURCE LEGEND

- EXISTING CONSERVATION EASEMENT
- WETLANDS
- FHAZ — LIMITS OF SPECIAL FLOOD HAZARD AREA PER FIRM MAPS 42045C0101F & 42045C0102F

GRAPHIC SCALE — 1 INCH = 40 FEET

REV.	DATE	COMMENT	BY
REV.	DATE	COMMENT	BY

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 076556

NOT FOR CONSTRUCTION

PROJECT No: 140012
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CAD ID. #: 10_ECD_140012

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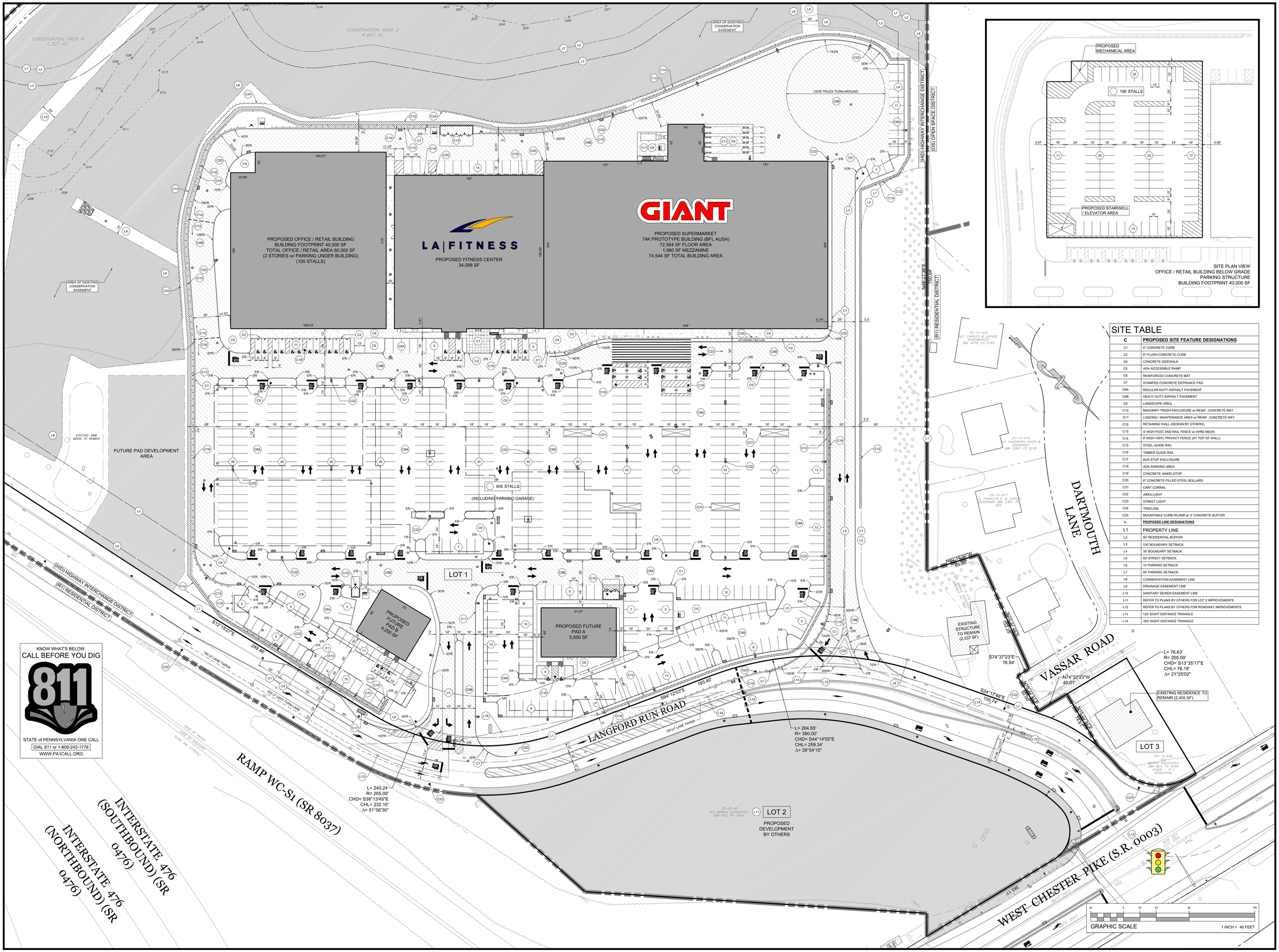
PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: EXISTING CONDITIONS PLAN

SCALE: (H) AS NOTED (V) -
DATE: 2017 - 12 - 22
SHEET: ECD
REV. No: 0



SITE PLAN VIEW
OFFICE / RETAIL BUILDING BELOW GRADE
PARKING STRUCTURE
BUILDING FOOTPRINT 40,000 SF

SITE TABLE

C	PROPOSED SITE FEATURE DESIGNATIONS
C1	6" CONCRETE CURB
C2	6" FLUSH CONCRETE CURB
C4	CONCRETE SIDEWALK
C5	ADA ACCESSIBLE RAMP
C6	REINFORCED CONCRETE MAT
C7	STAMPED CONCRETE ENTRANCE PAD
C8A	REGULAR DUTY ASPHALT PAVEMENT
C8B	HEAVY DUTY ASPHALT PAVEMENT
C9	LANDSCAPE AREA
C10	MASONRY TRASH ENCLOSURE w/ REINF. CONCRETE MAT
C11	LOADING / MAINTENANCE AREA w/ REINF. CONCRETE MAT
C12	RETAINING WALL (DESIGN BY OTHERS)
C13	4' HIGH POST AND RAIL FENCE w/ WIRE MESH
C14	6' HIGH VINYL PRIVACY FENCE (AT TOP OF WALL)
C15	STEEL GUIDE RAIL
C16	TIMBER GUIDE RAIL
C17	BUS STOP ENCLOSURE
C18	ADA PARKING AREA
C19	CONCRETE WHEELSTOP
C20	6" CONCRETE FILLED STEEL BOLLARD
C21	CART CORRAL
C22	AREA LIGHT
C23	STREET LIGHT
C24	TREELINE
C25	MOUNTABLE CURB ISLAND w/ 3' CONCRETE BUFFER
L	PROPOSED LINE DESIGNATIONS
L1	PROPERTY LINE
L2	80' RESIDENTIAL BUFFER
L3	100' BOUNDARY SETBACK
L4	35' BOUNDARY SETBACK
L5	60' STREET SETBACK
L6	10' PARKING SETBACK
L7	80' PARKING SETBACK
L8	CONSERVATION EASEMENT LINE
L9	DRAINAGE EASEMENT LINE
L10	SANITARY SEWER EASEMENT LINE
L11	REFER TO PLANS BY OTHERS FOR LOT 2 IMPROVEMENTS
L12	REFER TO PLANS BY OTHERS FOR ROADWAY IMPROVEMENTS
L13	120' SIGHT DISTANCE TRIANGLE
L14	350' SIGHT DISTANCE TRIANGLE

REV.	DATE	COMMENT	BY	REV.	DATE	COMMENT	BY

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PROJECT No: 140012
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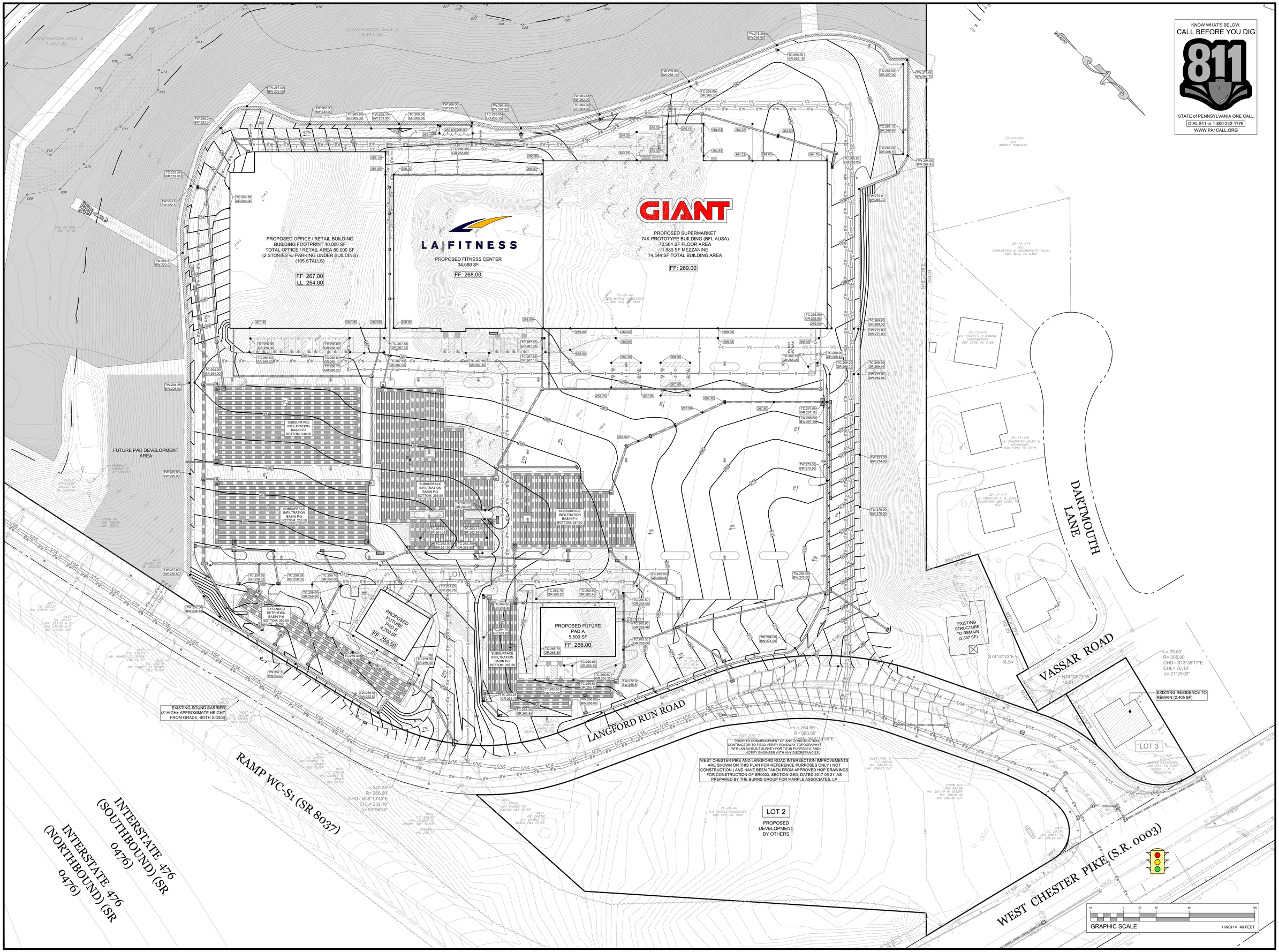
PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: SITE PLAN

SCALE: (H) AS NOTED (V)
DATE: 2017 - 12 - 22
SHEET: SP
REV. No: 0



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PROJECT No: 140912
DRAWN BY: B. NAGENGAST / M. RVEZZI
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CADD. # 12_GP-140912

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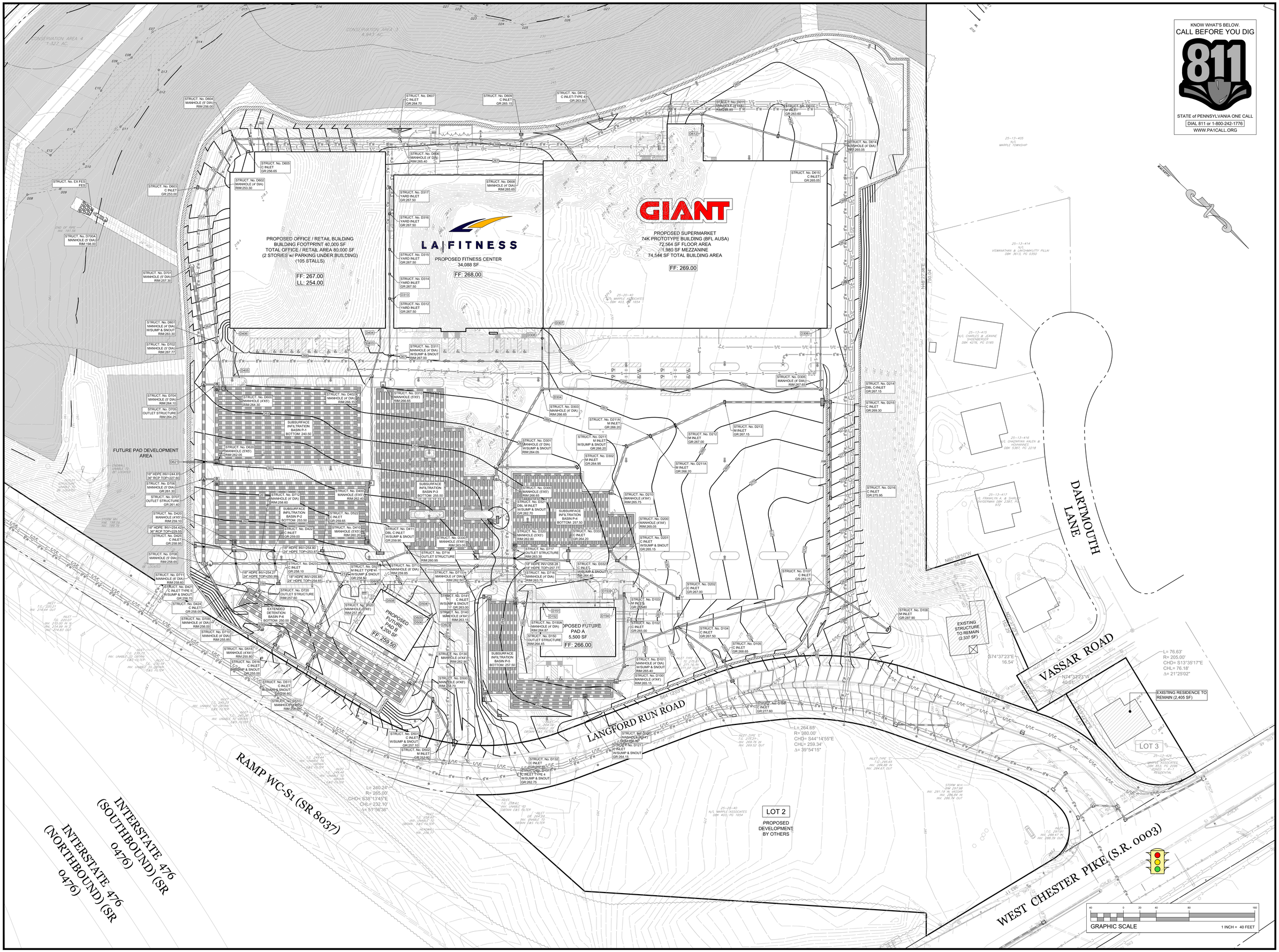
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA
TITLE: GRADING and DRAINAGE PLAN

SCALE: (H) AS NOTED
(V) -
DATE: 2017 - 12 - 22
SHEET: GP
REV. No: 0



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RYAN T. WHITMORE
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NOT FOR CONSTRUCTION

PROJECT No: 140012
DRAWN BY: B. WAGENGAST / M. RIVEZZI
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CAD I.D. #: 13-14_DP_140012

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PHONE: 267-687-2000
PROJECT DE:
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PHONE: 302-691-2000
PROJECT MD:
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BALTIMORE, MARYLAND 21208
PHONE: 410-602-4024
PROJECT VA:
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POMPANO BEACH, FLORIDA 33062
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PHONE: 518-690-0790
PROJECT PR:
CALLE CEREZO
SUITE 2B
CAGUAS, PUERTO RICO 00725
PHONE: 787-746-1530
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PROJECT: 140012

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA
TITLE: DRAINAGE PLAN

SCALE: (H) AS NOTED
(V)
DATE: 2017 - 12 - 22
SHEET: DP
REV. No: 0

D:\JOBSRDK (LANDCORE)\PROJECTS\2014\140012 - MRC - MARPLE PA\DRAWINGS\DP-SITE PLANS\13-14_DP_140012-------LAYOUT: DRAINAGE PLAN

STRUCTURE TABLE

STRUCTURE	STRUCTURE TYPE	RIM / GRATE
D100	MANHOLE (4'X4')	265.15
D101	MANHOLE (4' DIA) W/SUMP & SNOUT	265.40
D102	C INLET	265.00
D103	M INLET	265.00
D104	C INLET	267.50
D105	C INLET	268.65
D106	C INLET	277.60
D107	C INLET	283.15
D108	M INLET	287.90
D120	MANHOLE (4'X4')	264.70
D121	C INLET W/SUMP & SNOUT	264.15
D130	MANHOLE (4'X4')	262.90
D131	C INLET TYPE 4 W/SUMP & SNOUT	262.75
D132	C INLET	262.85
D140	MANHOLE (4'X4')	263.15
D141	C INLET W/SUMP & SNOUT	263.00
D150	OUTLET STRUCTURE	264.45
D150	OUTLET STRUCTURE	264.45
D150A	MANHOLE (4' DIA)	264.87
D151	CLEANOUT (6")	265.75
D152	ROOF LEADER	266.00
D153	CLEANOUT (6")	265.93
D154	ROOF LEADER	266.00
D200	MANHOLE (4'X4')	265.05
D201	C INLET W/SUMP & SNOUT	265.15
D202	C INLET	267.00
D210	MANHOLE (4'X4')	265.75
D211	M INLET W/SUMP & SNOUT	266.20
D211A	M INLET	266.20
D212	M INLET	267.00
D213	M INLET	267.15
D214	DBL C-INLET	267.15
D215	C INLET	269.30
D216	C INLET	275.95
D300	MANHOLE (5'X5')	266.65
D301	MANHOLE (5' DIA) W/SUMP & SNOUT	264.05
D302	M INLET	264.95
D303	MANHOLE (4' DIA)	266.65
D304	CLEANOUT (12")	266.80
D305	MANHOLE (4' DIA)	267.65
D306	ROOF LEADER	269.00
D307	ROOF LEADER	268.20
D308	ROOF LEADER	268.00
D310	MANHOLE (5'X5')	266.65
D311	MANHOLE (4' DIA) W/SUMP & SNOUT	267.00
D312	YARD INLET	267.50
D313	ROOF LEADER	267.60
D314	YARD INLET	267.50
D315	YARD INLET	267.50
D316	YARD INLET	267.50
D317	YARD INLET	267.50
D320	MANHOLE (5'X5')	262.80
D321	DBL M INLET W/SUMP & SNOUT	262.70
D330	MANHOLE (5'X6')	263.05
D332	C INLET W/SUMP & SNOUT	264.40
D333	C INLET	264.20
D400	MANHOLE (5'X5')	262.40
D402	MANHOLE (4' DIA)	266.15
D403	CLEANOUT (12")	267.60
D404	ROOF LEADER	267.80
D405	CLEANOUT (12")	264.90
D406	ROOF LEADER	266.30
D410	MANHOLE (5'X5')	260.20
D411	DBL C INLET W/SUMP & SNOUT	259.90
D420	MANHOLE (4'X5')	259.10
D421	C INLET TYPE 5 W/SUMP & SNOUT	258.70
D422	C INLET	259.00
D423	C INLET	258.10
D424	C INLET	258.05
D425	C INLET	258.95
D500	MANHOLE (4'X6')	258.70
D501	C INLET W/SUMP & SNOUT	257.10
D502	M INLET	257.80
D503	CLEANOUT (6")	260.90
D504	CLEANOUT (6")	261.02
D505	CLEANOUT (6")	261.05
D506	ROOF LEADER	261.10
D507	CLEANOUT (6")	259.90
D508	ROOF LEADER	259.95
D510	MANHOLE (4'X6')	256.95
D511	C INLET W/SUMP & SNOUT	256.60
D515	MANHOLE (4'X4')	255.80
D516	C INLET W/SUMP & SNOUT	255.00
D520	MANHOLE (6'X6')	257.45
D521	M INLET TYPE 4 W/SUMP & SNOUT	258.50
D522	C INLET	259.65
D600	MANHOLE (4'X5')	264.30
D601	MANHOLE (4' DIA) W/SUMP & SNOUT	263.30
D602	MANHOLE (4' DIA)	253.30
D603	C INLET	253.00
D604	MANHOLE (5' DIA)	256.00
D605	C INLET	256.65
D606	MANHOLE (4' DIA)	265.40
D607	C INLET	264.70
D608	MANHOLE (4' DIA)	265.65
D609	C INLET	265.15
D610	C INLET-TYPE 4	263.80
D611	MANHOLE (4' DIA)	264.85
D612	ROOF DRAIN	264.83
D613	M INLET	263.60
D614	MANHOLE (4' DIA)	265.05
D615	C INLET	265.05
D620	MANHOLE (5'X5')	262.05
D621	CAP	262.00
D700A	MANHOLE (5' DIA)	198.00
D701	MANHOLE (5' DIA)	257.30
D702	MANHOLE (5' DIA)	267.77
D704	MANHOLE (5' DIA)	264.10
D705	OUTLET STRUCTURE	264.25
D706	MANHOLE (5' DIA)	261.30

STRUCTURE TABLE

STRUCTURE	STRUCTURE TYPE	RIM / GRATE
D707	OUTLET STRUCTURE	261.40
D708	MANHOLE (5' DIA)	258.65
D709	MANHOLE (4' DIA)	256.00
D710	MANHOLE (4' DIA)	255.85
D711	MANHOLE (6' DIA)	258.60
D712	MANHOLE (4' DIA)	258.60
D713	MANHOLE (6' DIA)	259.85
D714	OUTLET STRUCTURE	260.95
D715	MANHOLE (4' DIA)	262.50
D716	MANHOLE (4' DIA)	263.75
D717	OUTLET STRUCTURE	263.30
D720	OUTLET STRUCTURE	257.60
EX FES	FES	195.53

PIPE TABLE

NAME	UPSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM STRUCTURE	DOWNSTREAM INVERT	SIZE	QTY	LENGTH (FEET)	SLOPE (%)
D100-D101	D101	261.12	D100	261.00	18" HDPE	1	21.06	0.57%
D101-D102	D102	261.33	D101	261.22	18" HDPE	1	21.68	0.51%
D102-D103	D103	261.75	D102	261.43	18" HDPE	1	65.18	0.49%
D102-D104	D104	264.22	D102	261.43	18" HDPE	1	69.76	4.00%
D104-D105	D105	265.02	D104	264.32	18" HDPE	1	70.07	1.00%
D104-D107	D107	269.12	D104	264.32	18" HDPE	1	192.06	2.50%
D105-D106	D106	266.71	D105	265.12	18" HDPE	1	26.53	5.99%
D107-D108	D108	283.00	D107	278.00	18" HDPE	1	84.13	5.94%
D120-D121	D121	260.20	D120	260.00	18" HDPE	1	19.92	1.00%
D130-D131	D131	259.05	D130	259.00	18" HDPE	1	8.74	0.57%
D131-D132	D132	259.28	D131	259.15	18" HDPE	1	26.71	0.49%
D140-D141	D141	259.00	D140	258.90	18" RCP	1	7.03	1.42%
D150-D150A	D150A	260.10	D150	260.00	8" HDPE	1	9.29	1.08%
D150A-D151	D151	260.44	D150A	260.20	8" HDPE	1	24.01	1.00%
D151-D152	D152	260.67	D151	260.61	6" HDPE	1	5.96	1.01%
D151-D153	D153	261.48	D151	260.61	6" HDPE	1	87.01	1.00%
D153-D154	D154	261.54	D153	261.48	6" HDPE	1	5.96	1.01%
D200-D201	D201	261.19	D200	261.00	18" HDPE	1	15.14	1.25%
D201-D202	D202	263.90	D201	261.29	18" HDPE	1	86.89	3.00%
D210-D211	D211	260.96	D210	260.50	24" HDPE	1	59.37	0.77%
D211-D211A	D211A	261.30	D211	261.06	24" HDPE	1	31.85	0.75%
D211A-D212	D212	261.65	D211A	261.40	24" HDPE	1	32.97	0.76%
D212-D213	D213	262.25	D212	261.75	24" HDPE	1	66.42	0.75%
D213-D214	D214	263.64	D213	262.75	18" RCP	1	118.69	0.75%
D214-D215	D215	264.05	D214	263.74	18" RCP	1	10.36	2.99%
D215-D216	D216	271.83	D215	266.00	18" RCP	1	116.64	5.00%
D300-D301	D301	259.07	D300	259.00	30" HDPE	1	10.83	0.65%
D301-D302	D302	260.59	D301	260.07	18" HDPE	1	98.12	0.53%
D301-D303	D303	260.14	D301	259.57	24" HDPE	1	110.36	0.52%
D303-D304	D304	260.32	D303	260.24	24" HDPE	1	8.24	0.97%
D303-D308	D308	264.47	D303	263.00	12" HDPE	1	73.53	2.00%
D304-D305	D305	264.00	D304	260.82	18" HDPE	1	330.76	0.96%
D304-D307	D307	264.47	D304	263.00	15" HDPE	1	73.35	2.00%
D305-D306	D306	265.72	D305	264.25	15" HDPE	1	73.34	2.00%
D310-D311	D311	262.43	D310	262.00	12" HDPE	1	36.02	1.19%
D311-D312	D312	263.12	D311	262.43	12" HDPE	1	69.33	1.00%
D312-D313	D313	263.32	D312	263.22	12" HDPE	1	4.95	2.02%
D312-D314	D314	263.55	D312	263.22	12" HDPE	1	30.00	1.10%
D314-D315	D315	263.80	D314	263.65	12" HDPE	1	30.00	0.50%
D315-D316	D316	264.11	D315	263.90	12" HDPE	1	43.27	0.49%
D316-D317	D317	264.38	D316	264.21	12" HDPE	1	32.44	0.52%
D320-D321	D321	259.00	D320	258.92	18" HDPE	1	8.36	0.96%
D330-D332	D332	258.69	D330	258.00	18" HDPE	1	111.64	0.62%
D332-D333	D333	258.85	D332	258.79	18" HDPE	1	12.11	0.50%
D400-D402	D402	258.65	D400	258.00	18" HDPE	1	130.27	0.50%
D402-D403	D403	263.55	D402	263.00	12" HDPE	1	36.92	1.49%
D402-D405	D405	261.67	D402	259.15	12" HDPE	1	168.30	1.50%
D403-D404	D404	263.89	D403	263.55	12" HDPE	1	22.41	1.52%
D405-D406	D406	262.82	D405	261.67	12" HDPE	1	57.71	1.99%
D410-D411	D411	256.21	D410	256.00	24" HDPE	1	20.72	1.01%
D420-D421	D421	254.09	D420	254.00	18" HDPE	1	9.05	0.99%
D421-D422	D422	254.62	D421	254.19	18" HDPE	1	47.15	0.91%
D421-D424	D424	254.40	D421	254.19	18" HDPE	1	41.65	0.50%
D421-D425	D425	254.50	D421	254.19	18" HDPE	1	47.51	0.65%
D422-D423	D423	254.93	D422	254.72	18" HDPE	1	40.57	0.52%
D500-D501	D501	254.17	D500	254.00	18" HDPE	1	34.30	0.50%
D500-D503	D503	255.72	D500	254.00	6" HDPE	1	79.39	2.17%
D501-D502	D502	254.56	D501	254.27	18" HDPE	1	57.12	0.51%
D503-D504	D504	255.86	D503	255.72	6" HDPE	1	6.89	2.03%
D504-D505	D505	255.90	D504	255.86	6" HDPE	1	1.80	2.22%
D505-D506	D506	256.05	D505	256.00	6" HDPE	1	5.00	1.00%
D505-D507	D507	256.62	D505	256.00	6" HDPE	1	66.42	0.93%
D507-D508	D508	256.77	D507	256.72	6" HDPE	1	5.00	1.00%
D510-D511	D511	253.10	D510	253.00	18" RCP	1	14.39	0.69%
D515-D516	D516	251.80	D515	251.70	18" RCP	1	14.41	0.69%
D520-D521	D521	255.24	D520	254.00	18" RCP	1	55.95	2.22%
D521-D522	D522	256.31	D521	255.34	18" HDPE	1	47.77	2.03%
D600-D601	D601	246.28	D600	246.00	24" HDPE	1	57.11	0.49%
D601-D602	D602	247.31	D601	246.38	24" HDPE	1	185.93	0.50%
D602-D603	D603	247.86	D602	247.81	18" HDPE	1	10.96	0.46%
D602-D604	D604	250.90	D602	247.91	18" HDPE	1	69.87	4.28%
D604-D605	D605	253.00	D604	252.50	18" HDPE	1	23.15	2.16%
D604-D606	D606	255.35	D604	251.00	18" HDPE	1	202.06	2.15%
D606-D607	D607	260.05	D606	260.00	18" HDPE	1	10.07	0.50%
D606-D608	D608	257.18	D606	255.45	18" HDPE	1	148.23	1.17%
D608-D609	D609	261.04	D608	261.00	18" HDPE	1	7.24	0.55%
D608-D610	D610	258.80	D608	257.28	18" HDPE	1	100.16	1.52%
D610-D611	D611	259.52	D610	258.90	18" HDPE	1	123.15	0.50%
D611-D612	D612	261.12	D611	261.00	6" HDPE	1	11.89	1.01%
D611-D613	D613	260.10	D611	259.62	18" HDPE	1	96.69	0.50%
D613-D614	D614	261.67	D613	260.20	18" HDPE	1	73.53	2.00%
D614-D615	D615	261.86	D614	261.77	18" HDPE	1	16.73	0.54%
D620-D621	D621	245.00	D620	244.70	18" RCP	1	37.01	0.81%
D701-D702	D702	221.94	D701	221.00	36" RCP	1	93.52	1.01%
D702-D704	D704	223.00	D702	222.04	36" RCP	1	51.45	1.87%
D704-D705	D705	241.00	D704	240.90	18" HDPE	1	15.92	0.63%
D704-D706	D706	225.00	D704	223.10	36" RCP	1	115.18	1.65%
D706-D707	D707	254.00	D706	253.80	18" HDPE	1	16.02	1.25%
D706-D708	D708	227.00	D706	225.10	36" RCP	1	102.78	1.85%
D708-D709	D709	230.33	D708	228.00	24" RCP	1	60.51	3.85%
D708-D711	D711	248.60	D708	248.50	24" HDPE	1	7.85	1.27%
D709-D710	D710	232.00	D709	230.43	24" RCP	1	50.43	3.11%
D711-D712	D712	249.30	D711	248.70	24" HDPE	1	59.64	1.01%
D712-D713	D713	253.43	D712	251.67	24" HDPE	1	147.56	1.19%
D712-D720	D720	250.00	D712	249.80	18" HDPE	1	33.66	0.59%
D713-D714	D714	256.00	D713	255.70	18" HDPE	1	33.36	0.90%
D713-D715	D715	255.53	D713	253.93	18" HDPE	1	115.26	1.39%
D715-D716	D716	256.10	D715	255.63	18" HDPE	1	45.98	1.02%
D716-D150	D150	258.00	D716	257.50	18" HDPE	1	40.76	1.23%
D716-D717	D717	256.40	D716	256.20	18" HDPE	1	20.42	0.98%
EX FES-D700	EX FES	191.70	D700A	191.56	36" RCP	1	18.40	0.76%

REV.	DATE	COMMENT	BY

REV.	DATE	COMMENT	BY

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 076556

NOT FOR CONSTRUCTION

PROJECT No: 140012
DRAWN BY: B. NAGENGAST / M. RIVEZZI
CHECKED BY: R. WHITMORE
CAD I.D. #: 13-14_DP_140012

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PITTSBURGH, PA 15235
PHONE 412-253-6569
PRINCETON, NJ
100 OVERLOOK CENTER
SUITE 200
PRINCETON, NJ 08540
PHONE 609-920-0268

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: STORM SEWER CHART

SCALE: (H) AS NOTED
(V) .

DATE: 2017 - 12 - 22

SHEET: SC

REV. No: 0

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811

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DIAL 811 or 1-800-242-1776
WWW.PA1CALL.ORG

PROPOSED OFFICE / RETAIL BUILDING
BUILDING FOOTPRINT 40,000 SF
TOTAL OFFICE / RETAIL AREA 80,000 SF
(2 STORIES w/ PARKING UNDER BUILDING)
(105 STALLS)
FF: 267.00
LL: 254.00

LA FITNESS
PROPOSED FITNESS CENTER
34,088 SF
FF: 268.00

GIANT
PROPOSED SUPERMARKET
74K PROTOTYPE BUILDING (BFL AUSA)
72,564 SF FLOOR AREA
1,980 SF MEZZANINE
74,544 SF TOTAL BUILDING AREA
FF: 269.00

FUTURE PAD DEVELOPMENT AREA

MATCH LINE

LANGFORD RUN ROAD

RAMP WC-S1 (SR 8037)

WEST CHESTER PIKE (S.R. 0003)

VASSAR ROAD

DARTMOUTH LANE

LOT 2
PROPOSED DEVELOPMENT BY OTHERS

LOT 3

EXISTING RESIDENCE TO REMAIN (2,405 SF)

EXISTING STRUCTURE TO REMAIN (2,537 SF)

PROP. FUTURE PAD A
FF: 266.00
PROPOSED UTILITY SERVICES
TELEPHONE & CABLE
ELECTRIC
2" DOMESTIC WATER
6" FIRE SUPPRESSION WATER
(INTERNAL METERING
& BACKFLOW PREVENTION)
GAS
SANITARY SEWER
(INV. OUT 260.00)

PROP. FUTURE PAD B
FF: 266.00
PROPOSED UTILITY SERVICES
TELEPHONE & CABLE
ELECTRIC
2" DOMESTIC WATER
6" FIRE SUPPRESSION WATER
(INTERNAL METERING
& BACKFLOW PREVENTION)
GAS
SANITARY SEWER
(INV. OUT 260.00)

GRADING-UTILITY LEGEND

EXISTING ITEMS | PROPOSED ITEMS

- RIP-RAP
- DRAINAGE FLOW
- 321.34 SPOT GRADE
- STORM STRUCTURE
- HYDRANT
- VALVE
- REDUCER
- C — C U/G CABLE CONDUIT
- E — E U/G ELECTRICAL CONDUIT
- E/T U/G ELECTRICAL & TELEPHONE CONDUIT
- E/T/C U/G ELECTRICAL, TELEPHONE & CABLE CONDUIT
- G — G U/G GAS LINE
- OH OVER HEAD WIRES
- FM — FM SANITARY SEWER FORCE MAIN
- S — S SANITARY SEWER LATERAL
- D — D SANITARY SEWER MAIN
- D — D STORM SEWER LATERAL
- STORM SEWER MAIN
- T — T U/G TELEPHONE CONDUIT
- W — W WATER MAIN
- 76 CONTOUR
- FO U/G FIBER OPTIC CONDUIT

SEWER CROSSING CHART

CROSSING	PIPE A TYPE	PIPE A SIZE (IN)	PIPE A MATERIAL	PIPE A INVERT (FT)	PIPE A TOP or BOTTOM ELEV (FT)	PIPE B TYPE	PIPE B SIZE (IN)	PIPE B MATERIAL	PIPE B INVERT (FT)	PIPE B TOP or BOTTOM ELEV (FT)	PIPE CLEARANCE (FT)	PIPE CLEARANCE (IN)	CONCRETE ENCASEMENT REQUIRED
X1	SAN	8	PVC	253.52	254.22	STORM	18.00	HDPE	255.95	255.82	1.60	19.2	NO
X2	SAN	8	PVC	253.72	254.42	STORM	18.00	HDPE	258.20	258.07	3.65	43.8	NO
X3	SAN	8	PVC	255.92	256.62	STORM	18.00	HDPE	260.11	259.98	3.36	40.4	NO
X4	SAN	8	PVC	256.17	256.87	STORM	24.00	HDPE	259.65	259.48	2.61	31.4	NO
X5	SAN	8	PVC	258.79	259.49	STORM	12.00	HDPE	263.38	263.28	3.79	45.5	NO
X6	SAN	8	PVC	258.87	259.57	STORM	15.00	HDPE	263.38	263.25	3.68	44.2	NO
X7	SAN	8	PVC	259.73	260.43	STORM	12.00	HDPE	262.23	262.13	1.70	20.4	NO
X8	SAN	8	PVC	260.05	260.75	STORM	12.00	HDPE	263.13	263.03	2.28	27.4	NO
X9	SAN	6	PVC	255.22	255.75	STORM	18.00	HDPE	257.60	257.47	1.72	20.6	NO
X10	SAN	6	PVC	259.77	260.30	STORM	6.00	PVC	261.11	261.08	0.78	9.4	YES
X11	SAN	6	PVC	252.88	253.41	STORM	6.00	PVC	256.29	256.26	2.85	34.2	NO

GRAPHIC SCALE 1 INCH = 40 FEET

REV.	DATE	COMMENT	BY
REV.	DATE	COMMENT	BY

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 076556

NOT FOR CONSTRUCTION

PROJECT No: 140012
DRAWN BY: B. McGRAGAR / M. RIVEZZI
CHECKED BY: R. WHITMORE
CAD I.D. #: 15_UP_140012

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FAX: 215-628-2011

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA
TITLE: UTILITIES PLAN

SCALE: (H) AS NOTED (V)
DATE: 2017 - 12 - 22
SHEET: UP
REV. No: 0

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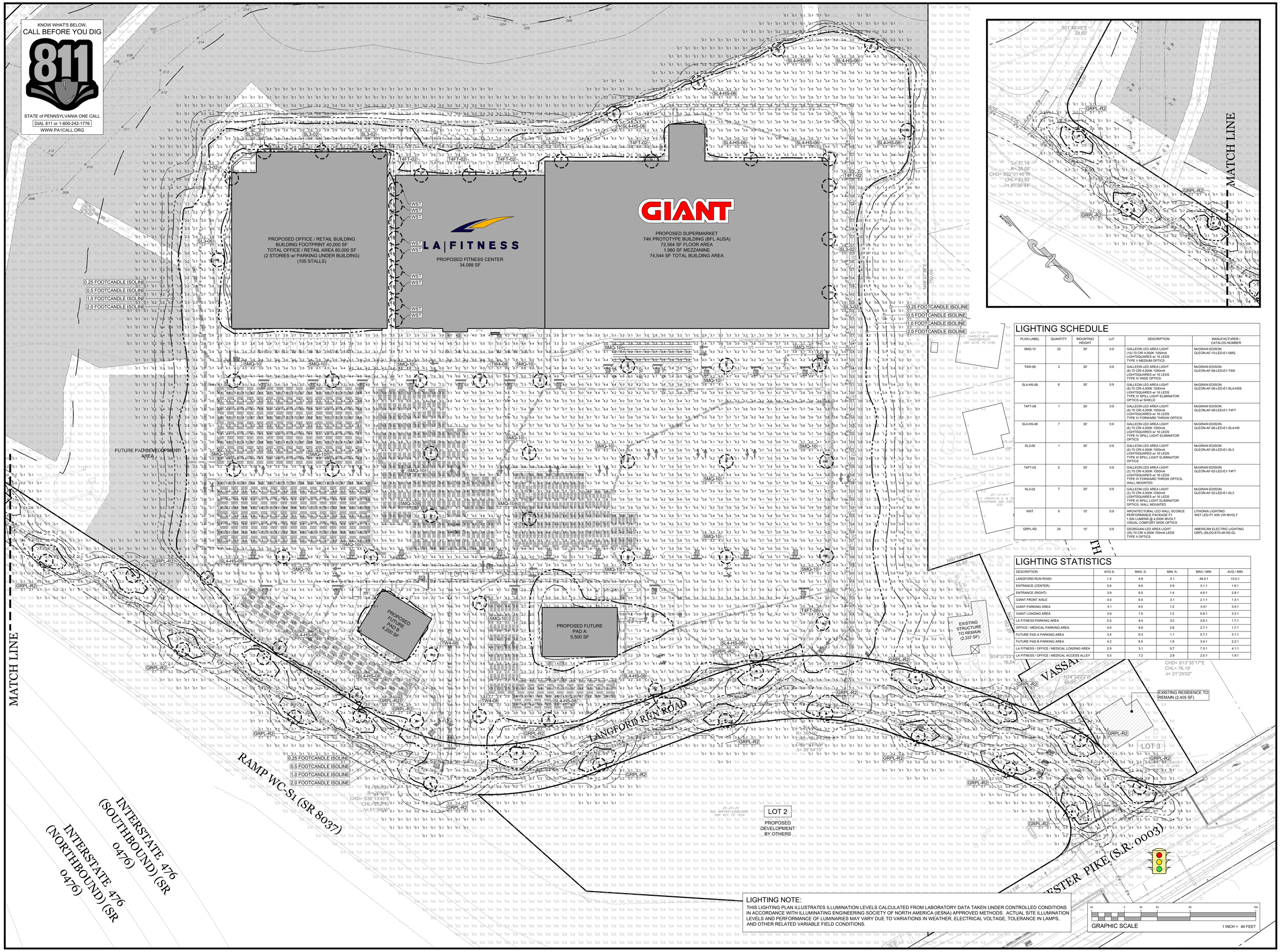

LIGHTING SCHEDULE

PLAN LABEL	QUANTITY	MOUNTING HEIGHT	LLF	DESCRIPTION	MANUFACTURER / CATALOG NUMBER
5MQ-10	22	30'	0.9	GALLEON LED AREA LIGHT (10) 70 CRI 4,000K 1050mA LIGHTSQUARES w/ 16 LEDS TYPE V MEDIUM OPTICS	McGRAW-EDISON GLEON-AF-10-LED-E1-5MQ
T4W-08	3	30'	0.9	GALLEON LED AREA LIGHT (8) 70 CRI 4,000K 1050mA LIGHTSQUARES w/ 16 LEDS TYPE IV WIDE OPTICS	McGRAW-EDISON GLEON-AF-08-LED-E1-T4W
SL4-HS-08	6	30'	0.9	GALLEON LED AREA LIGHT (8) 70 CRI 4,000K 1050mA LIGHTSQUARES w/ 16 LEDS TYPE IV SPILL LIGHT ELIMINATOR OPTICS w/ SHIELD	McGRAW-EDISON GLEON-AF-08-LED-E1-SL4-HSS
T4FT-08	1	30'	0.9	GALLEON LED AREA LIGHT (8) 70 CRI 4,000K 1050mA LIGHTSQUARES w/ 16 LEDS TYPE IV FORWARD THROW OPTICS	McGRAW-EDISON GLEON-AF-08-LED-E1-T4FT
SL4-HS-06	7	30'	0.9	GALLEON LED AREA LIGHT (6) 70 CRI 4,000K 1050mA LIGHTSQUARES w/ 16 LEDS TYPE IV SPILL LIGHT ELIMINATOR OPTICS	McGRAW-EDISON GLEON-AF-06-LED-E1-SL4-HS
SL3-06	1	30'	0.9	GALLEON LED AREA LIGHT (6) 70 CRI 4,000K 1050mA LIGHTSQUARES w/ 16 LEDS TYPE III SPILL LIGHT ELIMINATOR OPTICS	McGRAW-EDISON GLEON-AF-06-LED-E1-SL3
T4FT-02	5	20'	0.9	GALLEON LED AREA LIGHT (2) 70 CRI 4,000K 1050mA LIGHTSQUARES w/ 16 LEDS TYPE IV FORWARD THROW OPTICS, WALL MOUNTED	McGRAW-EDISON GLEON-AF-02-LED-E1-T4FT
SL3-02	7	20'	0.9	GALLEON LED AREA LIGHT (2) 70 CRI 4,000K 1050mA LIGHTSQUARES w/ 16 LEDS TYPE III SPILL LIGHT ELIMINATOR OPTICS, WALL MOUNTED	McGRAW-EDISON GLEON-AF-02-LED-E1-SL3
WST	9	10'	0.9	ARCHITECTURAL LED WALL SCONCE PERFORMANCE PACKAGE P1 1,500 LUMENS @ 4,000K MVOLT VISUAL COMFORT WIDE OPTICS	LITHONIA LIGHTING WST LED P1 40K VW MVOLT
GRPL-R2	24	15'	0.9	GEORGIAN LED AREA LIGHT (30) 70 CRI 4,000K 700mA LEDS TYPE II OPTICS	AMERICAN ELECTRIC LIGHTING GRPL-30LED-E70-4K-R2-GL

LIGHTING STATISTICS

DESCRIPTION	AVG fc	MAX. fc	MIN. fc	MAX / MIN	AVG / MIN
LANGFORD RUN ROAD	1.3	4.9	0.1	49.0:1	13.0:1
ENTRANCE (CENTER)	5.6	8.9	2.9	3.1:1	1.9:1
ENTRANCE (RIGHT)	3.9	6.5	1.4	4.6:1	2.8:1
GIANT FRONT AISLE	4.0	6.4	3.1	2.1:1	1.3:1
GIANT PARKING AREA	4.1	6.5	1.2	5.4:1	3.4:1
GIANT LOADING AREA	3.9	7.0	1.2	5.8:1	3.3:1
LA FITNESS PARKING AREA	5.5	8.4	3.2	2.6:1	1.7:1
OFFICE / MEDICAL PARKING AREA	4.5	6.9	2.6	2.7:1	1.7:1
FUTURE PAD A PARKING AREA	3.4	6.3	1.1	5.7:1	3.1:1
FUTURE PAD B PARKING AREA	4.2	6.5	1.9	3.4:1	2.2:1
LA FITNESS / OFFICE / MEDICAL LOADING AREA	2.9	5.1	0.7	7.3:1	4.1:1
LA FITNESS / OFFICE / MEDICAL ACCESS ALLEY	5.5	7.2	2.9	2.5:1	1.9:1

LIGHTING NOTE:

THIS LIGHTING PLAN ILLUSTRATES ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA) APPROVED METHODS. ACTUAL SITE ILLUMINATION LEVELS AND PERFORMANCE OF LUMINARIES MAY VARY DUE TO VARIATIONS IN WEATHER, ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER RELATED VARIABLE FIELD CONDITIONS.

REV.	DATE	COMMENT	BY	REV.	DATE	COMMENT	BY

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 076556

NOT FOR CONSTRUCTION

PROJECT No: 140012
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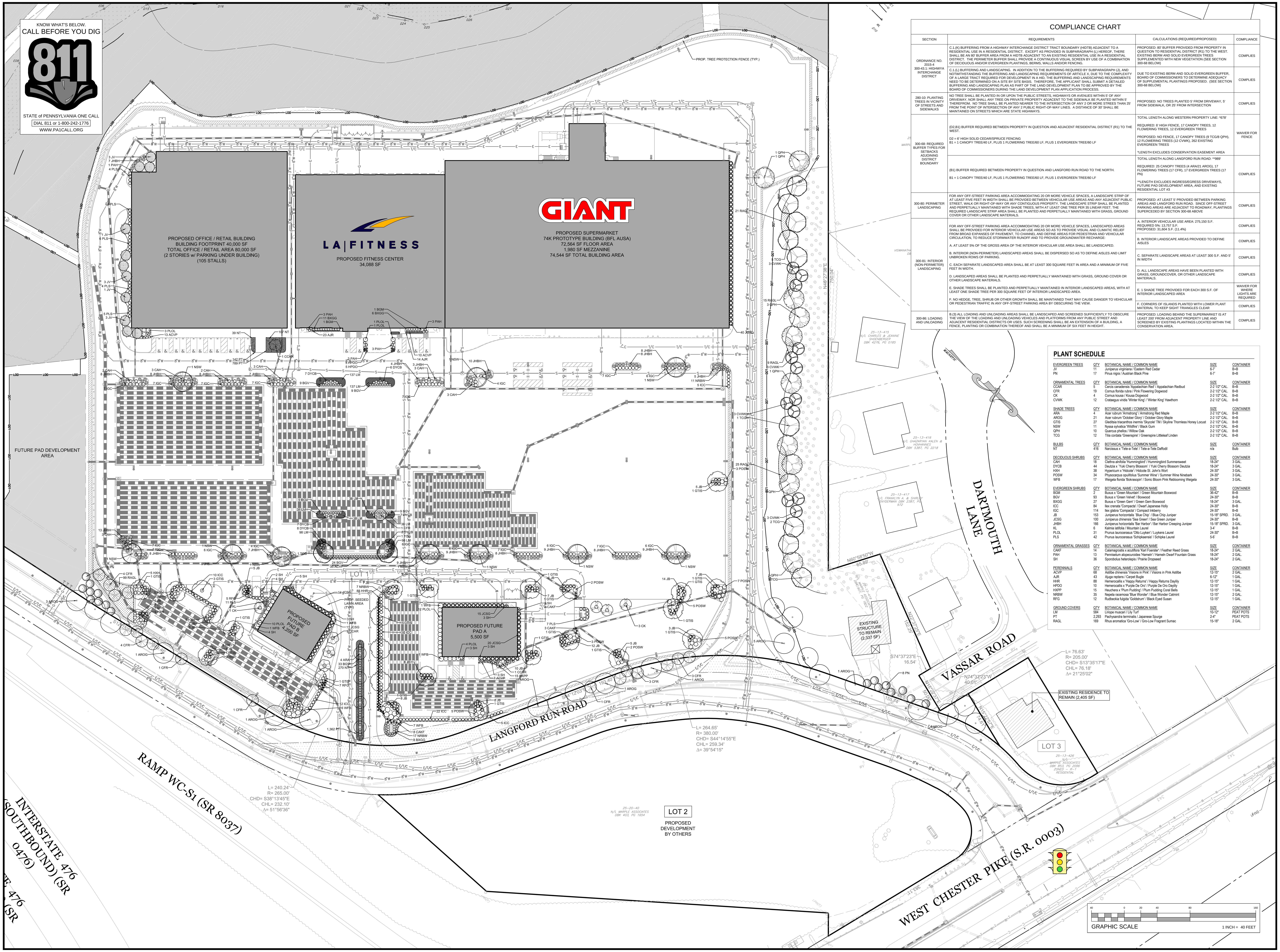
PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: LIGHTING PLAN

SCALE: (H) AS NOTED (V)
DATE: 2017 - 12 - 22
SHEET: LP
REV. No: 0

D:\JOBS\R\MA (LANDCORE)\PROJECTS\2014\140012 - NRC - MARPLE PA\DRAWINGS\00-SITE PLANS\16_LP_140012-----PLAN\OUT: LIGHTING



COMPLIANCE CHART

SECTION	REQUIREMENTS	CALCULATIONS (REQUIRED/PROPOSED)	COMPLIANCE
ORDINANCE NO. 2015-4 300-43.1: HIGHWYA INTERCHANGE DISTRICT	C.1.(K) BUFFERING FROM A HIGHWAY INTERCHANGE DISTRICT TRACT BOUNDARY (HIDTB) ADJACENT TO A RESIDENTIAL USE IN A RESIDENTIAL DISTRICT. EXCEPT AS PROVIDED IN SUBPARAGRAPH (L) HEREOF, THERE SHALL BE AN 80' BUFFER AREA FROM A HIDTB ADJACENT TO AN EXISTING RESIDENTIAL USE IN A RESIDENTIAL DISTRICT. THE PERIMETER BUFFER SHALL PROVIDE A CONTINUOUS VISUAL SCREEN BY USE OF A COMBINATION OF DECIDUOUS AND/OR EVERGREEN PLANTINGS, BERMS, WALLS AND/OR FENCING.	PROPOSED: 80' BUFFER PROVIDED FROM PROPERTY IN QUESTION TO RESIDENTIAL DISTRICT (R1) TO THE WEST. EXISTING BERM AND SOLID EVERGREEN TREES SUPPLEMENTED WITH NEW VEGETATION (SEE SECTION 300-68 BELOW)	COMPLIES
	C.1.(L) BUFFERING AND LANDSCAPING. IN ADDITION TO THE BUFFERING REQUIRED BY SUBPARAGRAPH (J), AND NOTWITHSTANDING THE BUFFERING AND LANDSCAPING REQUIREMENTS OF ARTICLE X, DUE TO THE COMPLEXITY OF A LARGE TRACT REQUIRED FOR DEVELOPMENT IN A HID, THE BUFFERING AND LANDSCAPING REQUIREMENTS NEED TO BE DETERMINED ON A SITE BY SITE BASIS. THEREFORE, THE APPLICANT SHALL SUBMIT A DETAILED BUFFERING AND LANDSCAPING PLAN AS PART OF THE LAND DEVELOPMENT PLAN TO BE APPROVED BY THE BOARD OF COMMISSIONERS DURING THE LAND DEVELOPMENT PLAN APPLICATION PROCESS.	DUE TO EXISTING BERM AND SOLID EVERGREEN BUFFER, BOARD OF COMMISSIONERS TO DETERMINE ADEQUACY OF SUPPLEMENTAL PLANTINGS PROPOSED. (SEE SECTION 300-68 BELOW)	COMPLIES
280-10: PLANTING TREES IN VICINITY OF STREETS AND SIDEWALKS	NO TREE SHALL BE PLANTED IN OR UPON THE PUBLIC STREETS, HIGHWAYS OR AVENUES WITHIN 5' OF ANY DRIVEWAY, NOR SHALL ANY TREE ON PRIVATE PROPERTY ADJACENT TO THE SIDEWALK BE PLANTED WITHIN 5' THEREFROM. NO TREE SHALL BE PLANTED NEARER TO THE INTERSECTION OF ANY 2 OR MORE STREES THAN 25' FROM THE POINT OF INTERSECTION OF ANY 2 PUBLIC RIGHT-OF-WAY LINES. A DISTANCE OF 30' SHALL BE MAINTAINED ON STREETS WHICH ARE STATE HIGHWAYS.	PROPOSED: NO TREES PLANTED 5' FROM DRIVEWAY, 5' FROM SIDEWALK, OR 25' FROM INTERSECTION	COMPLIES
300-68: REQUIRED BUFFER TYPES FOR SETBACKS ADJOINING DISTRICT BOUNDARY	(D2,B1) BUFFER REQUIRED BETWEEN PROPERTY IN QUESTION AND ADJACENT RESIDENTIAL DISTRICT (R1) TO THE WEST. D2 = 6' HIGH SOLID CEDAR/SPRUCE FENCING B1 = 1 CANOPY TREE/40 LF, PLUS 1 FLOWERING TREE/60 LF, PLUS 1 EVERGREEN TREE/60 LF	TOTAL LENGTH ALONG WESTERN PROPERTY LINE: *678' REQUIRED: 6' HIGH FENCE, 17 CANOPY TREES, 12 FLOWERING TREES, 12 EVERGREEN TREES PROPOSED: NO FENCE, 17 CANOPY TREES (9 TCG/8 QPH), 12 FLOWERING TREES (12 CVWK), 262 EXISTING EVERGREEN TREES *LENGTH EXCLUDES CONSERVATION EASEMENT AREA	WAIVER FOR FENCE
	(B1) BUFFER REQUIRED BETWEEN PROPERTY IN QUESTION AND LANGFORD RUN ROAD TO THE NORTH. B1 = 1 CANOPY TREE/40 LF, PLUS 1 FLOWERING TREE/60 LF, PLUS 1 EVERGREEN TREE/60 LF	TOTAL LENGTH ALONG LANGFORD RUN ROAD: **989' REQUIRED: 25 CANOPY TREES (4 ARA/21 AROG), 17 FLOWERING TREES (17 CFR), 17 EVERGREEN TREES (17 PN) **LENGTH EXCLUDES INGRESS/EGRESS DRIVEWAYS, FUTURE PAD DEVELOPMENT AREA, AND EXISTING RESIDENTIAL LOT #3	COMPLIES
300-80: PERIMETER LANDSCAPING	FOR ANY OFF-STREET PARKING AREA ACCOMMODATING 20 OR MORE VEHICLE SPACES, A LANDSCAPE STRIP OF AT LEAST FIVE FEET IN WIDTH SHALL BE PROVIDED BETWEEN VEHICULAR USE AREAS AND ANY ADJACENT PUBLIC STREET, WALK OR RIGHT-OF-WAY OR ANY CONTIGUOUS PROPERTY. THE LANDSCAPE STRIP SHALL BE PLANTED AND PERPETUALLY MAINTAINED WITH SHADE TREES, WITH AT LEAST ONE TREE PER 35 LINEAR FEET. THE REQUIRED LANDSCAPE STRIP AREA SHALL BE PLANTED AND PERPETUALLY MAINTAINED WITH GRASS, GROUND COVER OR OTHER LANDSCAPE MATERIALS.	PROPOSED: AT LEAST 5' PROVIDED BETWEEN PARKING AREAS AND LANGFORD RUN ROAD. SINCE OFF-STREET PARKING AREAS ARE ADJACENT TO ROADWAY, PLANTINGS SUPERCEDED BY SECTION 300-68 ABOVE	COMPLIES
300-81: INTERIOR (NON-PERIMETER) LANDSCAPING	FOR ANY OFF-STREET PARKING AREA ACCOMMODATING 20 OR MORE VEHICLE SPACES, LANDSCAPED AREAS SHALL BE PROVIDED FOR INTERIOR VEHICULAR USE AREAS SO AS TO PROVIDE VISUAL AND CLIMATIC RELIEF FROM BROAD EXPANSES OF PAVEMENT, TO CHANNEL AND DEFINE AREAS FOR PEDESTRIAN AND VEHICULAR CIRCULATION, TO REDUCE STORMWATER RUNOFF AND TO PROVIDE GROUNDWATER RECHARGE: A. AT LEAST 5% OF THE GROSS AREA OF THE INTERIOR VEHICULAR USE AREA SHALL BE LANDSCAPED. B. INTERIOR (NON-PERIMETER) LANDSCAPED AREAS SHALL BE DISPERSED SO AS TO DEFINE AISLES AND LIMIT UNBROKEN ROWS OF PARKING. C. EACH SEPARATE LANDSCAPED AREA SHALL BE AT LEAST 300 SQUARE FEET IN AREA AND A MINIMUM OF FIVE FEET IN WIDTH. D. LANDSCAPED AREAS SHALL BE PLANTED AND PERPETUALLY MAINTAINED WITH GRASS, GROUND COVER OR OTHER LANDSCAPE MATERIALS. E. SHADE TREES SHALL BE PLANTED AND PERPETUALLY MAINTAINED IN INTERIOR LANDSCAPED AREAS, WITH AT LEAST ONE SHADE TREE PER 300 SQUARE FEET OF INTERIOR LANDSCAPED AREA. F. NO HEDGE, TREE, SHRUB OR OTHER GROWTH SHALL BE MAINTAINED THAT MAY CAUSE DANGER TO VEHICULAR OR PEDESTRIAN TRAFFIC IN ANY OFF-STREET PARKING AREA BY OBSCURING THE VIEW.	A. INTERIOR VEHICULAR USE AREA: 275,150 S.F. REQUIRED 5%: 13,757 S.F. PROPOSED: 31,604 S.F. (11.4%)	COMPLIES
		B. INTERIOR LANDSCAPE AREAS PROVIDED TO DEFINE AISLES	COMPLIES
		C. SEPARATE LANDSCAPE AREAS AT LEAST 300 S.F. AND 5' IN WIDTH	COMPLIES
		D. ALL LANDSCAPE AREAS HAVE BEEN PLANTED WITH GRASS, GROUNDCOVER, OR OTHER LANDSCAPE MATERIALS.	COMPLIES
		E. 1 SHADE TREE PROVIDED FOR EACH 300 S.F. OF INTERIOR LANDSCAPED AREA	WAIVER FOR WHERE LIGHTS ARE REQUIRED
		F. CORNERS OF ISLANDS PLANTED WITH LOWER PLANT MATERIAL TO KEEP SIGHT TRIANGLES CLEAR	COMPLIES
300-86: LOADING AND UNLOADING	B.(3) ALL LOADING AND UNLOADING AREAS SHALL BE LANDSCAPED AND SCREENED SUFFICIENTLY TO OBSCURE THE VIEW OF THE LOADING AND UNLOADING VEHICLES AND PLATFORMS FROM ANY PUBLIC STREET AND ADJACENT RESIDENTIAL DISTRICTS OR USES. SUCH SCREENING SHALL BE AN EXTENSION OF A BUILDING, A FENCE, PLANTING OR COMBINATION THEREOF AND SHALL BE A MINIMUM OF SIX FEET IN HEIGHT.	PROPOSED: LOADING BEHIND THE SUPERMARKET IS AT LEAST 200' FROM ADJACENT PROPERTY LINE AND SCREENED BY EXISTING PLANTINGS LOCATED WITHIN THE CONSERVATION AREA.	COMPLIES

PLANT SCHEDULE

EVERGREEN TREES	QTY	BOTANICAL NAME / COMMON NAME	SIZE	CONTAINER
JV	11	Juniperus virginiana / Eastern Red Cedar	6-7`	B+B
PN	17	Pinus nigra / Austrian Black Pine	6-7`	B+B
ORNAMENTAL TREES	**QTY**	**BOTANICAL NAME / COMMON NAME**	**SIZE**	**CONTAINER**
CCAR	5	Cercis canadensis 'Appalachian Red' / Appalachian Redbud	2-2 1/2" CAL.	B+B
CFR	19	Cornus florida rubra / Pink Flowering Dogwood	2-2 1/2" CAL.	B+B
CK	4	Cornus kousa / Kousa Dogwood	2-2 1/2" CAL.	B+B
CVWK	12	Crataegus viridis 'Winter King' / 'Winter King' Hawthorn	2-2 1/2" CAL.	B+B
SHADE TREES	**QTY**	**BOTANICAL NAME / COMMON NAME**	**SIZE**	**CONTAINER**
ARA	4	Acer rubrum 'Armstrong' / Armstrong Red Maple	2-2 1/2" CAL.	B+B
AROG	21	Acer rubrum 'October Glory' / October Glory Maple	2-2 1/2" CAL.	B+B
GTIS	27	Gleditsia triacanthos inermis 'Skycole' TM / Skyline Thornless Honey Locust	2-2 1/2" CAL.	B+B
NSW	11	Nyssa sylvatica 'Wildfire' / Black Gum	2-2 1/2" CAL.	B+B
QPH	10	Quercus phellos / Willow Oak	2-2 1/2" CAL.	B+B
TCG	12	Tilia cordata 'Greenspire' / Greenspire Littleleaf Linden	2-2 1/2" CAL.	B+B
BULBS	**QTY**	**BOTANICAL NAME / COMMON NAME**	**SIZE**	**CONTAINER**
NT	416	Narcissus x 'Tete-a-Tete' / Tete-a-Tete Daffodil	n/a	Bulb
DECIDUOUS SHRUBS	**QTY**	**BOTANICAL NAME / COMMON NAME**	**SIZE**	**CONTAINER**
CAH	18	Clethra alnifolia 'Hummingbird' / Hummingbird Summersweet	18-24"	3 GAL.
DYCB	44	Deutzia x `Yuki Cherry Blossom` / Yuki Cherry Blossom Deutzia	18-24"	3 GAL.
HXH	38	Hypericum x 'Hidcote' / Hidcote St. John's Wort	24-30"	3 GAL.
POSW	34	Physocarpus opulifolius 'Summer Wine' / Summer Wine Ninebark	24-30"	3 GAL.
WFB	17	Weigela florida 'Bokrasopin' / Sonic Bloom Pink Reblooming Weigela	24-30"	3 GAL.
EVERGREEN SHRUBS	**QTY**	**BOTANICAL NAME / COMMON NAME**	**SIZE**	**CONTAINER**
BGM	2	Buxus x 'Green Mountain' / Green Mountain Boxwood	36-42"	B+B
BGV	93	Buxus x 'Green Velvet' / Boxwood	24-30"	B+B
BXGG	27	Buxus x 'Green Gem' / Green Gem Boxwood	18-24"	3 GAL.
ICC	84	Ilex crenata 'Compacta' / Dwarf Japanese Holly	24-30"	B+B
IGC	114	Ilex glabra 'Compacta' / Compact Inkberry	24-30"	B+B
JB	153	Juniperus horizontalis `Blue Chip` / Blue Chip Juniper	15-18" SPRD.	3 GAL.
JCSG	100	Juniperus chinensis 'Sea Green' / Sea Green Juniper	24-30"	B+B
JHBH	166	Juniperus horizontalis 'Bar Harbor' / Bar Harbor Creeping Juniper	15-18" SPRD.	3 GAL.
KL	6	Kalmia latifolia / Mountain Laurel	3-4`	B+B
PLOL	31	Prunus laurocerasus 'Otto Luyken' / Luykens Laurel	24-30"	B+B
PLS	42	Prunus laurocerasus 'Schipkaensis' / Schipka Laurel	5-6`	B+B
ORNAMENTAL GRASSES	**QTY**	**BOTANICAL NAME / COMMON NAME**	**SIZE**	**CONTAINER**
CAKF	14	Calamagrostis x acutiflora 'Karl Foerster' / Feather Reed Grass	18-24"	2 GAL.
PAH	13	Pennisetum alopecuroides 'Hameln' / Hameln Dwarf Fountain Grass	18-24"	2 GAL.
SH	36	Sporobolus heterolepis / Prairie Dropseed	18-24"	2 GAL.
PERENNIALS	**QTY**	**BOTANICAL NAME / COMMON NAME**	**SIZE**	**CONTAINER**
ACVP	68	Astilbe chinensis 'Visions in Pink' / Visions in Pink Astilbe	12-15"	2 GAL.
AJR	43	Ajuga reptans / Carpet Bugle	6-12"	1 GAL.
HHR	88	Hemerocallis x 'Happy Returns' / Happy Returns Daylily	12-15"	1 GAL.
HPDO	10	Hemerocallis x 'Purple De Oro' / Purple De Oro Daylily	12-15"	1 GAL.
HXPP	15	Heuchera x 'Plum Pudding' / Plum Pudding Coral Bells	12-15"	1 GAL.
NRBW	35	Nepeta racemosa 'Blue Wonder' / Blue Wonder Catmint	12-15"	2 GAL.
RFG	12	Rudbeckia fulgida 'Goldstrum' / Black Eyed Susan	12-15"	1 GAL.
GROUND COVERS	**QTY**	**BOTANICAL NAME / COMMON NAME**	**SIZE**	**CONTAINER**
LM	584	Liriope muscari / Lily Turf	10-12"	PEAT POTS
PT	2,293	Pachysandra terminalis / Japanese Spurge	2-4"	PEAT POTS
RAGL	169	Rhus aromatica 'Gro-Low' / Gro-Low Fragrant Sumac	15-18"	2 GAL.

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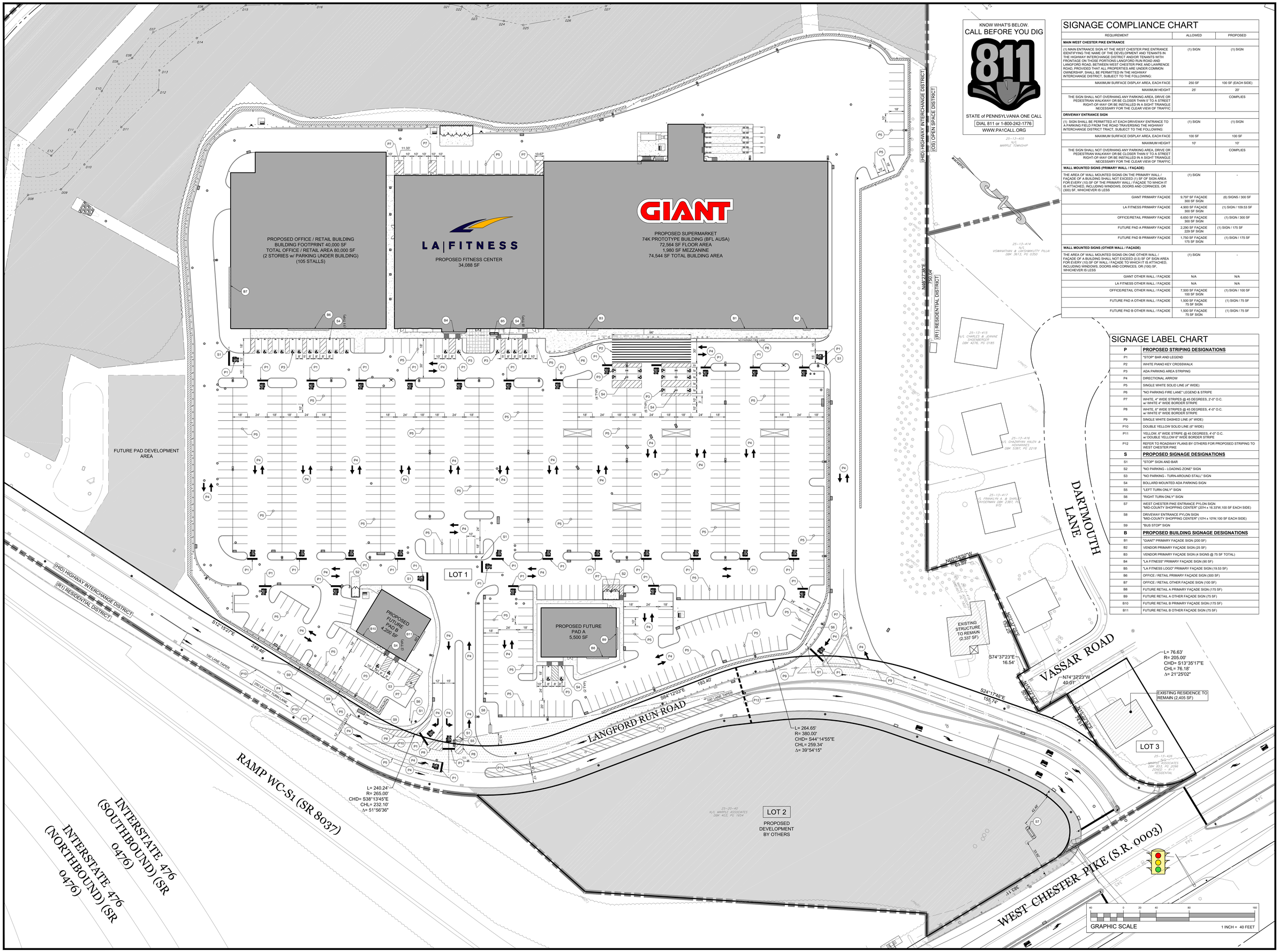
PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: POST CONSTRUCTION STORMWATER MANAGEMENT LANDSCAPING PLAN

SCALE: (H) AS NOTED (V) .
DATE: 2017 - 12 - 22
SHEET: LA
REV. No: 0



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SIGNAGE COMPLIANCE CHART

REQUIREMENT	ALLOWED	PROPOSED
MAIN WEST CHESTER PIKE ENTRANCE		
(1) MAIN ENTRANCE SIGN AT THE WEST CHESTER PIKE ENTRANCE IDENTIFYING THE NAME OF THE DEVELOPMENT AND TENANTS IN THE HIGHWAY INTERCHANGE DISTRICT AND/OR TENANTS WITH FRONTAGE ON THOSE PORTIONS LANGFORD RUN ROAD AND LANGFORD ROAD, BETWEEN WEST CHESTER PIKE AND LAWRENCE ROAD, PROVIDED THAT ALL PROPERTIES ARE UNDER COMMON OWNERSHIP, SHALL BE PERMITTED IN THE HIGHWAY INTERCHANGE DISTRICT, SUBJECT TO THE FOLLOWING:	(1) SIGN	(1) SIGN
MAXIMUM SURFACE DISPLAY AREA, EACH FACE	250 SF	100 SF (EACH SIDE)
MAXIMUM HEIGHT	25'	20'
THE SIGN SHALL NOT OVERHANG ANY PARKING AREA, DRIVE OR PEDESTRIAN WALKWAY OR BE CLOSER THAN 0' TO A STREET RIGHT-OF-WAY OR BE INSTALLED IN A SIGHT TRIANGLE NECESSARY FOR THE CLEAR VIEW OF TRAFFIC		COMPLIES
DRIVEWAY ENTRANCE SIGN		
(1) SIGN SHALL BE PERMITTED AT EACH DRIVEWAY ENTRANCE TO A PARKING FIELD FROM THE ROAD TRAVERSING THE HIGHWAY INTERCHANGE DISTRICT TRACT, SUBJECT TO THE FOLLOWING:	(1) SIGN	(1) SIGN
MAXIMUM SURFACE DISPLAY AREA, EACH FACE	100 SF	100 SF
MAXIMUM HEIGHT	10'	10'
THE SIGN SHALL NOT OVERHANG ANY PARKING AREA, DRIVE OR PEDESTRIAN WALKWAY OR BE CLOSER THAN 0' TO A STREET RIGHT-OF-WAY OR BE INSTALLED IN A SIGHT TRIANGLE NECESSARY FOR THE CLEAR VIEW OF TRAFFIC		COMPLIES
WALL MOUNTED SIGNS (PRIMARY WALL / FAÇADE)		
THE AREA OF WALL MOUNTED SIGNS ON THE PRIMARY WALL / FAÇADE OF A BUILDING SHALL NOT EXCEED (1) SF OF SIGN AREA FOR EVERY (10) SF OF THE PRIMARY WALL / FAÇADE TO WHICH IT IS ATTACHED, INCLUDING WINDOWS, DOORS AND CORNICES, OR (300) SF, WHICHEVER IS LESS	(1) SIGN	-
GIANT PRIMARY FAÇADE	9,797 SF FAÇADE 300 SF SIGN	(6) SIGNS / 300 SF
LA FITNESS PRIMARY FAÇADE	4,900 SF FAÇADE 300 SF SIGN	(1) SIGN / 109.53 SF
OFFICE/RETAIL PRIMARY FAÇADE	6,650 SF FAÇADE 300 SF SIGN	(1) SIGN / 300 SF
FUTURE PAD A PRIMARY FAÇADE	2,290 SF FAÇADE 229 SF SIGN	(1) SIGN / 175 SF
FUTURE PAD B PRIMARY FAÇADE	1,750 SF FAÇADE 175 SF SIGN	(1) SIGN / 175 SF
WALL MOUNTED SIGNS (OTHER WALL / FAÇADE)		
THE AREA OF WALL MOUNTED SIGNS ON ONE OTHER WALL / FAÇADE OF A BUILDING SHALL NOT EXCEED (0.5) SF OF SIGN AREA FOR EVERY (10) SF OF WALL / FAÇADE TO WHICH IT IS ATTACHED, INCLUDING WINDOWS, DOORS AND CORNICES, OR (100) SF, WHICHEVER IS LESS	(1) SIGN	-
GIANT OTHER WALL / FAÇADE	N/A	N/A
LA FITNESS OTHER WALL / FAÇADE	N/A	N/A
OFFICE/RETAIL OTHER WALL / FAÇADE	7,500 SF FAÇADE 100 SF SIGN	(1) SIGN / 100 SF
FUTURE PAD A OTHER WALL / FAÇADE	1,500 SF FAÇADE 75 SF SIGN	(1) SIGN / 75 SF
FUTURE PAD B OTHER WALL / FAÇADE	1,500 SF FAÇADE 75 SF SIGN	(1) SIGN / 75 SF

SIGNAGE LABEL CHART

P	**PROPOSED STRIPING DESIGNATIONS**
P1	"STOP" BAR AND LEGEND
P2	WHITE PIANO KEY CROSSWALK
P3	ADA PARKING AREA STRIPING
P4	DIRECTIONAL ARROW
P5	SINGLE WHITE SOLID LINE (4" WIDE)
P6	"NO PARKING FIRE LANE" LEGEND & STRIPE
P7	WHITE, 4" WIDE STRIPES @ 45 DEGREES, 2'-0" O.C. w/ WHITE 4" WIDE BORDER STRIPE
P8	WHITE, 6" WIDE STRIPES @ 45 DEGREES, 4'-0" O.C. w/ WHITE 6" WIDE BORDER STRIPE
P9	SINGLE WHITE DASHED LINE (4" WIDE)
P10	DOUBLE YELLOW SOLID LINE (6" WIDE)
P11	YELLOW, 6" WIDE STRIPE @ 45 DEGREES, 4'-0" O.C. w/ DOUBLE YELLOW 6" WIDE BORDER STRIPE
P12	REFER TO ROADWAY PLANS BY OTHERS FOR PROPOSED STRIPING TO WEST CHESTER PIKE
S	**PROPOSED SIGNAGE DESIGNATIONS**
S1	"STOP" SIGN AND BAR
S2	"NO PARKING - LOADING ZONE" SIGN
S3	"NO PARKING - TURN-AROUND STALL" SIGN
S4	BOLLARD MOUNTED ADA PARKING SIGN
S5	"LEFT TURN ONLY" SIGN
S6	"RIGHT TURN ONLY" SIGN
S7	WEST CHESTER PIKE ENTRANCE PYLON SIGN "MID-COUNTY SHOPPING CENTER" (20'H x 16.33'W,100 SF EACH SIDE)
S8	DRIVEWAY ENTRANCE PYLON SIGN "MID-COUNTY SHOPPING CENTER" (10'H x 10'W,100 SF EACH SIDE)
S9	"BUS STOP" SIGN
B	**PROPOSED BUILDING SIGNAGE DESIGNATIONS**
B1	"GIANT" PRIMARY FAÇADE SIGN (200 SF)
B2	VENDOR PRIMARY FAÇADE SIGN (25 SF)
B3	VENDOR PRIMARY FAÇADE SIGN (4 SIGNS @ 75 SF TOTAL)
B4	"LA FITNESS" PRIMARY FAÇADE SIGN (90 SF)
B5	"LA FITNESS LOGO" PRIMARY FAÇADE SIGN (19.53 SF)
B6	OFFICE / RETAIL PRIMARY FAÇADE SIGN (300 SF)
B7	OFFICE / RETAIL OTHER FAÇADE SIGN (100 SF)
B8	FUTURE RETAIL A PRIMARY FAÇADE SIGN (175 SF)
B9	FUTURE RETAIL A OTHER FAÇADE SIGN (75 SF)
B10	FUTURE RETAIL B PRIMARY FAÇADE SIGN (175 SF)
B11	FUTURE RETAIL B OTHER FAÇADE SIGN (75 SF)

REV.	DATE	COMMENT	REV.	DATE	COMMENT	BY

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 076556

NOT FOR CONSTRUCTION

PROJECT No: 140012
DRAWN BY: B. WAGENGAST / M. RIVEZZI
CHECKED BY: R. WHITMORE
CAD I.D. #: 18_SS_140012

LANDCORE Engineering Consultants, P.C.
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PRINCIPAL: 2310 BOND CENTER BOULEVARD 1500 WILLIAM PENN WAY LANCASTER, PA 17601-4088 PHONE: 717-293-9100
PRINCIPAL: 2310 BOND CENTER BOULEVARD PITTSBURGH, PA 15205 PHONE: 412-923-9000

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA
TITLE: SIGNAGE and STRIPING PLAN

SCALE: (H) AS NOTED (V) -
DATE: 2017 - 12 - 22
SHEET: SS
REV. No: 0

D:\JOBS\BDK (LANDCORE)\PROJECTS\2014\140012 - MRC - MARPLE PA\DRAWINGS\SITE PLANS\18_SS_140012-----LAYOUT SIGN STRIPE PLAN

GRADING-UTILITY LEGEND

EXISTING ITEMS / PROPOSED ITEMS

- RIP-RAP
- DRAINAGE FLOW
- SPOT GRADE
- STORM STRUCTURE
- HYDRANT
- VALVE
- REDUCER
- U/G CABLE CONDUIT
- U/G ELECTRICAL CONDUIT
- U/G ELECTRICAL & TELEPHONE CONDUIT
- U/G ELECTRICAL, TELEPHONE & CABLE CONDUIT
- U/G GAS LINE
- OVER HEAD WIRES
- SANITARY SEWER FORCE MAIN
- SANITARY SEWER LATERAL
- SANITARY SEWER MAIN
- STORM SEWER LATERAL
- STORM SEWER MAIN
- U/G TELEPHONE CONDUIT
- WATER MAIN
- CONTOUR
- U/G FIBER OPTIC CONDUIT

KNOW WHAT'S BELOW.
CALL BEFORE YOU DIG

STATE of PENNSYLVANIA ONE CALL
DIAL 811 or 1-800-242-1776
WWW.PA1CALL.ORG

SEE "POST CONSTRUCTION STORMWATER MANAGEMENT NOTES" SHEET "NP" FOR SOILS LIMITATIONS AND PCSM NOTES.

SEE "POST CONSTRUCTION STORMWATER MANAGEMENT POST-DEVELOPMENT DRAINAGE MAP" SHEET "PDAM" FOR PCSM BMP DRAINAGE AREAS

SEE "LANDSCAPING / PCSM PLAN" FOR TREE CREDITS

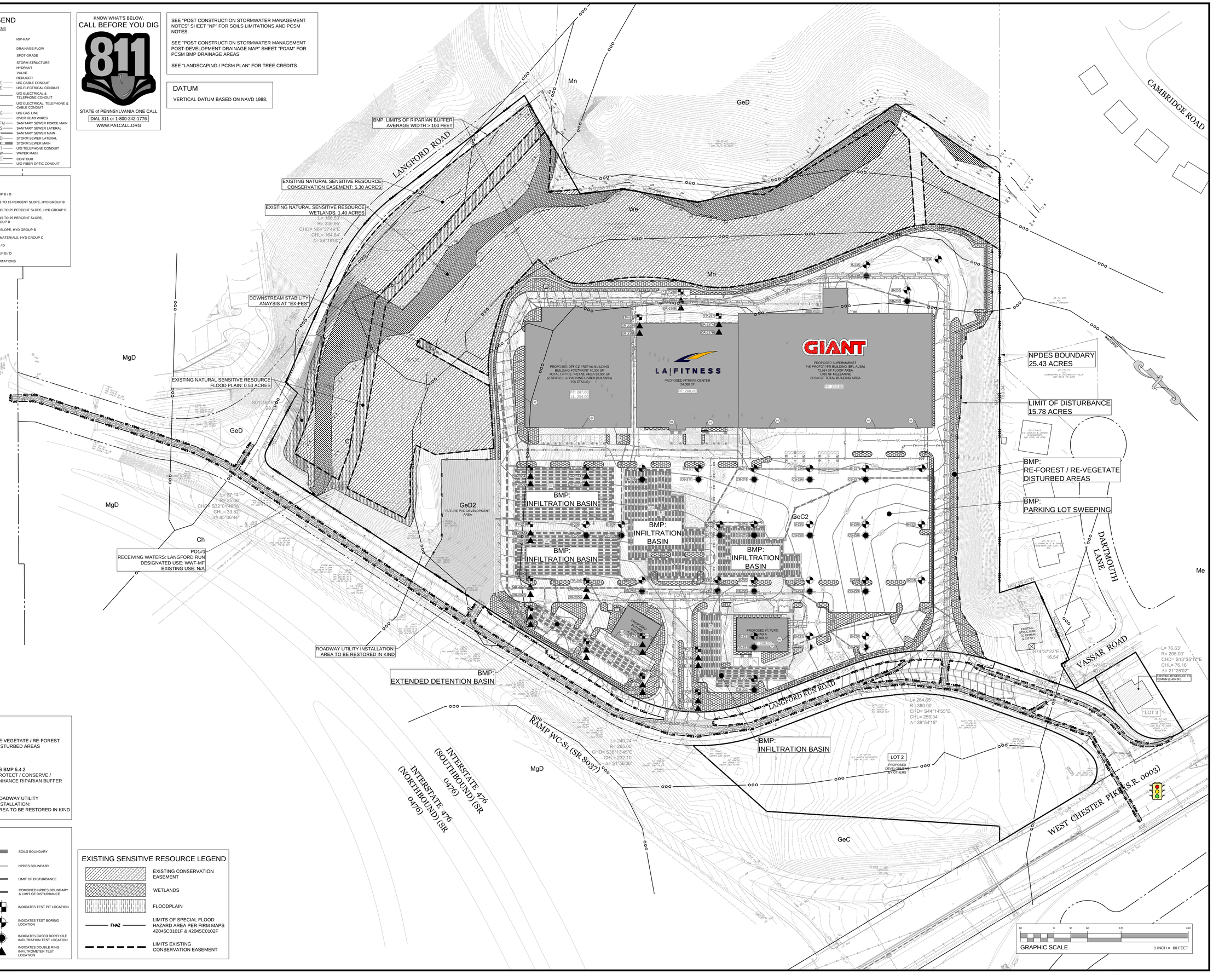
DATUM

VERTICAL DATUM BASED ON NAVD 1988.

SOILS LEGEND

Ch:	CHEWACLA SILT LOAM, HYD GROUP B / D
GeC2	GLENELG CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPE, HYD GROUP B
GeD:	GLENELG CHANNERY SILT LOAM, 15 TO 25 PERCENT SLOPE, HYD GROUP B
GeD2:	GLENELG CHANNERY SILT LOAM, 15 TO 25 PERCENT SLOPE, MODERATRELY ERODED, HYD GROUP B
MgD:	MANOR LOAM, 15 TO 25 PERCENT SLOPE, HYD GROUP B
Me:	MADE LAND, SCHIST AND GNEISS MATERIALS, HYD GROUP C
Mn:	MELVIN SILT LOAM, HYD GROUP B / D
We:	WEHADKEE SILT LOAM, HYD GROUP B / D

SEE SHEETS "NE" AND/OR "NP" FOR SOILS LIMITATIONS



BMP LEGEND

- RE-VEGETATE / RE-FOREST DISTURBED AREAS
- NS BMP 5.4.2 PROTECT / CONSERVE / ENHANCE RIPARIAN BUFFER
- ROADWAY UTILITY INSTALLATION: AREA TO BE RESTORED IN KIND

PCSM LEGEND

- SOILS BOUNDARY
- NPDES BOUNDARY
- LIMIT OF DISTURBANCE
- COMBINED NPDES BOUNDARY & LIMIT OF DISTURBANCE
- (SEE PCSM REPORT FOR TESTING RESULTS) INDICATES TEST PIT LOCATION
- (SEE PCSM REPORT FOR TESTING RESULTS) INDICATES TEST BORING LOCATION
- (SEE PCSM REPORT FOR TESTING RESULTS) INDICATES CASED BOREHOLE INFILTRATION TEST LOCATION
- (SEE PCSM REPORT FOR TESTING RESULTS) INDICATES DOUBLE RING INFILTROMETER TEST LOCATION

EXISTING SENSITIVE RESOURCE LEGEND

- EXISTING CONSERVATION EASEMENT
- WETLANDS
- FLOODPLAIN
- FHAZ — LIMITS OF SPECIAL FLOOD HAZARD AREA PER FIRM MAPS 42045C0101F & 42045C0102F
- LIMITS EXISTING CONSERVATION EASEMENT

REV.	DATE	COMMENT	BY	REV.	DATE	COMMENT	BY

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 078556

NOT FOR CONSTRUCTION

PROJECT No: 14012
DRAWN BY: B. NAGENGAST / M. RWZZB
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CAD I.D. #: 19_PCS_140012

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PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

SCALE: (H) AS NOTED (V)
DATE: 2017 - 12 - 22
SHEET: PCS
REV. No: 0

D:\JOBS\19_LANDCORE\PROJECTS\2014\14012 - MRC - MARPLE PA\DRAWINGS\00-SITE PLANS\19_PCS_14012-------ALAYOUT POST CONST STORMWTR MANAGEMENT

SOILS LIMITATION CHART

MAP SYMBOL & SOIL NAME	CUTBANKS CAVE	CORROSIVE CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE / SEASONAL HIGH WATER TABLE	HYDRIC/HYDRIC INLCUSION	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
CHEWACLA SILT LOAM																
Ch	X	C/S			X	X	X	X	X	X		X				X
GLENELG CHANNERY SILT LOAM																
GeC2, GeD, GeD2	X	C		X			X	X	X	X	X	X				X
MANOR LOAM																
M\gD	X	C		X				X	X	X	X	X				
MADE LAND, SCHIST AND GNEISS MATERIALS																
Me	NO DATA AVAILABLE															
MELVIN SILT LOAM																
Mn	X	S		X	X	X	X	X	X	X	X	X	X	X	X	X
WEHADKEE SILT LOAM																
We	X	C/S			X	X		X	X	X		X				X

LIMITATIONS	RESOLUTIONS
CUTBANKS / CAVE	IT IS IMPERATIVE THAT APPROPRIATE PRECAUTIONS BE TAKEN TO SAFEGUARD WORKERS DURING ALL TRENCHING AND EXCAVATION OPERATIONS. ALL APPLICABLE OSHA STANDARDS AND REGULATIONS MUST BE IMPLEMENTED AT ALL TIMES.
CORROSIVE TO CONCRETE /STEEL	ADDITIONAL SOILS TESTING TO EVALUATE THE CORROSIVE PROPERTIES OF THE SOILS SHALL BE COMPLETED PRIOR TO CONSTRUCTION AND MATERIAL ADJUSTMENTS WILL BE MADE ACCORDINGLY.
EASILY ERODIBLE	CONSTRUCTION TIMING WILL BE COORDINATED TO AVOID EARTH MOVEMENT OPERATIONS AND MAJOR TRENCHING WORK DURING THE RAINY SEASON TO MINIMIZE EROSION. SEDIMENT BARRIERS WILL BE PLACED DOWNSTREAM OF CONSTRUCTION AREAS TO CAPUTURE SEDIMENTS IN RUNOFF. DISTURBED AREAS WILL BE TEMPORARILY /PERMANENTLY STABILIZED AT THE COMPLETION OF EACH CONSTRUCTION STAGE.
FLOODING	ALL IMPROVEMENTS WILL OCCUR IN AREAS ABOVE THE 100-YEAR FLOODPLAIN.
DEPTH TO SATURATED ZONE / SHWT	THE PROPOSED IMPROVEMENTS AND BMPS HAVE BEEN DESIGNED TO ACCOUNT FOR GROUNDWATER AND ANY OTHER LIMITING ZONE.
HYDRIC / HYDRIC INCLUSIONS	ALL IMPROVEMENTS WILL OCCUR IN AREAS ABOVE THE 100-YEAR FLOODPLAIN. PLANT SPECIES HAVE BEEN SELECTED TO ACCOUNT FOR HYDRIC SOIL CONDITIONS.
LOW STRENGTH / LANDSLIDE PRONE	PRECAUTIONS SHOULD BE TAKEN TO PREVENT SLOPE FAILURES DUE TO IMPROPER CONSTRUCTION PRACTICES SUCH AS OVER-STEEPENING AND OVERLOADING OF SLOPES, REMOVAL OF LATERAL SUPPORT, AND FAILURE TO PREVENT SATURATION OF SLOPES. SETBACKS SHOULD COMPLY WITH THE STANDARDS CONTAINED IN CHAPTER 16 UNLESS IT CAN BE SHOWN THAT PROPOSED CUTS AND FILLS DO NOT POSE A HAZARD TO PUBLIC SAFETY OR TO SURFACE WATERS. ALSO, ROAD FILL MATERIAL WILL LIKELY NEED TO BE IMPORTED IN AREAS WHERE SOILS HAVE LOW STRENGTH. ADDITIONAL SOIL TESTING WILL BE DONE BY A PROFESSIONAL GEOTECNICAL ENGINEER PRIOR TO CONSTRUCTION AND RECOMMENDATION PROVIDED.
SLOW PERCOLATION	RECHARGE BMPS HAVE BEEN DESIGNED IN AREAS WITH POSITIVE PERMEABILITY RATES AS DETERMINED BY FIELD TESTING.
PIPING	CALCULATIONS FOR ANTI-SEEP COLLARS HAVE BEEN PROVIDED, AND ADDED WHERE REQUIRED.
POOR SOURCE OF TOPSOIL	ANY TOPSOIL ENCOUNTERED ON-SITE WILL BE STOCKPILED AND RETUILITZED ON SITE IN LANDSCAPED/LAWN AREAS. ADDITIONAL TOPSOIL REQUIRED WILL BE IMPORTED.
FROST ACTION	CONSTRUCTION TIMING WILL BE COORDINATED TO AVOID PLACING FROST SENSITIVE MATERIALS, SUCH AS POURED CONCRETE, FOUNDATIONS, ETC. DURING FROST POTENTIAL MONTHS.
SHRINK SWELL	CONSTRUCTION TIMING WILL BE COORDINATED TO AVOID EARTH MOVEMENT OPERATIONS AND MAJOR TRENCHING WORK DURING THE RAINY SEASON TO MINIMIZE GROUNDWATER IMPACTS. ALSO, SUMP PUMPS EQUIPPED WITH FILTERING BAGS WILL BE UTILTIZED DURING CONSTRUCTION.
POTENTIAL SINKHOLE	PER PA EMAP AND GEOTECHNICAL INVESTIGATION, THE SITE IS NOT LOCATED IN AN AREA KNOWN FOR NATURALLY OCCURRING GEOLOGICAL FORMATIONS OR SOIL CONDITIONS THAT MAY HAVE THE POTENTIAL TO CAUSE POLLUTION OR POTENTIAL SINK HOLES DURING EARTH DISTURBANCE ACTIVITIES. IN THE EVENT ANY GEOLOGICAL FORMATION OR SOIL CONDITIONS ARE DISCOVERED DURING CONSTRUCTION, THE PERMITTEE SHALL NOTIFY THE ENGINEER OF RECORD AND COUNTY CONSERVATION DISTRICT FOR ACTIONS TO BE TAKEN.
PONDING	ALL IMPROVEMENTS WILL OCCUR IN AREAS NOT SUBJECT TO PONDING.
WETNESS	CONSTRUCTION TIMING WILL BE COORDINATED TO AVOID EARTH MOVEMENT OPERATIONS AND MAJOR TRENCHING WORK DURING THE RAINY SEASON. ADDITIONAL SOIL TESTING WILL BE DONE BY A PROFESSIONAL GEOTECNICAL ENGINEER PRIOR TO CONSTRUCTION AND RECOMMENDATION PROVIDED.

SITE SPECIFIC SEQUENCE OF BMP INSTALLATION

STAGE 1
1. INSTALL STAGE 1 CONSTRUCTION ENTRANCE.
2. INSTALL SEDIMENT BARRIERS AND CONCRETE WASHOUT. SEDIMENT BARRIERS BETWEEN WALL AND CONSERVATION EASEMENT SHALL BE MAINTAINED BY HAND. NO MACHINERY ALLOWED IN THIS AREA DURING AND AFTER WALL CONSTRUCTION.
3. INSTALL ORANGE "VISI" FENCE ALONG ENTIRE LIMIT OF DISTURBANCE, AND CONSERVATION EASEMENT. NO DISTURBANCE ALLOWED BEYOND FENCE.
4. INSTALL CONVEYANCE SYSTEM BETWEEN STRUCTURES "EX FES" TO "D700", INCLUDING OUTLET PROTECTION. PERMANENTLY STABILIZE ALL DISTURBED AREAS.
5. INSTALL LANGFORD RUN ROAD BYPASS CONVEYANCE SYSTEM BETWEEN STRUCTURES "D701" TO "D710". TEMPORARILY STABILIZE ALL DISTURBED AREAS.
6. UPGRADE EXISTING SEDIMENT BASIN "SB1": SEAL ALL ORIFICES AND WEIR AT EXISTING RISER AND INSTALL NEW TEMPORARY RISER. REPLACE EXISTING BAFFLE PER CURRENT DESIGN AND INSTALL CLEANOUT STAKE. TEMPORARILY STABILIZE ALL DISTURBED AREAS.
7. INSTALL DIVERSION SOXX "DS1".
8. SETUP STAGING AREA.
9. UPON THE INSTALLATION OR STABILIZATION OF ALL PERIMETER SEDIMENT CONTROL BMPS AND AT LEAST 3 DAYS PRIOR TO PROCEEDING WITH THE BULK EARTH DISTURBANCE ACTIVITIES, THE PERMITTEE OR CO-PERMITTEE SHALL PROVIDE NOTIFICATION TO THE DEPARTMENT OR DELAWARE COUNTY CONSERVATION DISTRICT.

STAGE 2
1. ENSURE SEDIMENT BASIN "SB1" REMAINS OPERATIONAL FOR THE ENTIRE DURATION OF STAGE 2.
2. INSTALL STAGE 2 CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT.
3. INSTALL SEDIMENT BARRIER S4A. SEDIMENT BARRIERS BETWEEN WALL AND CONSERVATION EASEMENT SHALL BE MAINTAINED BY HAND. NO MACHINERY ALLOWED IN THIS AREA DURING AND AFTER WALL CONSTRUCTION.
4. STRIP TOPSOIL WITHIN LIMIT OF DISTURBANCE AND PLACE IN STOCKPILE.
5. INITIATE NECESSARY SITE EARTHWORK TO ACHIEVE THE GRADES INDICATED ON THE STAGE 2 DRAWINGS. ENSURE MAINTENANCE OF SEDIMENT CONTROL FACILITIES.
6. CONSTRUCT RETAINING WALLS PER E&S STAGE 2 PLANS. ALONG THE SOUTHERN PORTION OF THE CONSERVATION EASEMENT, BEGIN WALL CONSTRUCTION FROM WEST TO EAST TO ALLOW THE DOWNSTREAM PORTION OF THE DIVERSION SOXX TO REMAIN OPERATIONAL. ONLY REMOVE THE PORTION OF DIVERSION SOXX NEEDED TO CONSTRUCT THE WALL EACH DAY.
7. INSTALL STAGE 2 STORM SEWER CONVEYANCE FACILITIES INCLUDING SUBSURFACE BASIN TEMPORARY BYPASS CONVEYANCE SYSTEM TO REDIRECT STORMWATER TO SEDIMENT BASIN "SB1". INSTALL INLET FILTERS AS STRUCTURES ARE COMPLETED. WORK SHALL COMMENCE FROM DOWNSTREAM TO UPSTREAM. TEMPORARILY BLOCK OPENINGS TO SUBSURFACE BASINS. NO CONNECTION ALLOWED TO SUBSURFACE BASINS UNTIL UPSTREAM AREAS ARE PERMANENTLY STABILIZED.
8. CRITICAL STAGE REQUIRES ENGINEERING OVERSIGHT (SEE PCSM PLAN): CONSTRUCT SUBSURFACE INFILTRATION BASINS "P1", "P2", "P3", "P4" AND "P5" AND SUBSURFACE EXTENDED DETENTION BASIN "P6", INCLUDING OUTFALL PIPES. DO NOT CONNECT TO UPSTREAM CONVEYANCE SYSTEM AT THIS TIME.
9. INSTALL OTHER STAGE 2 UNDERGROUND UTILITIES.
10. PROVIDE TEMPORARY AND/OR PERMANENT STABILIZATION AS REQUIRED: PRIOR TO INITIATION OF BUILDING CONSTRUCTION, SUFFICIENT STABILIZATION OF SURROUNDING AREAS AND ADEQUATE STABLE STAGING AND PARKING MUST BE PROVIDED.
11. INITIATE STAGE 2 BUILDING CONSTRUCTION.
12. CONTINUE WITH THE BALANCE OF THE EARTHWORK AND INSTALL STAGE 2 CURBING, SIDEWALKS, ETC. MAINTAIN ALL E&S BMPS, INCLUDING SEDIMENT BASIN.
13. INSTALL STONE SUBBASE COURSE FOR ALL STAGE 2 PAVEMENT AND CONCRETE AREAS.
14. INSTALL PERMANENT VEGETATION INCLUDING LANDSCAPING AND GRASSED AREAS WITHIN THE CONSTRUCTION LIMITS OF STAGE 2.
15. PERMANENTLY STABILIZE DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS OF STAGE 2. PERMANENT STABILIZATION IS DEFINED AS 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.
16. INSTALL BINDER COURSE FOR ALL PAVEMENT AND CONCRETE AREAS.
17. CRITICAL STAGE REQUIRES ENGINEERING OVERSIGHT (SEE PCSM PLAN): CONNECT SUBSURFACE BASINS "P2", "P3", "P4", "P5" AND "P6" TO UPSTREAM CONVEYANCE SYSTEM. CAP ALL TEMPORARY BYPASS PIPES WITH WATER TIGHT SEALS.

STAGE 3
1. ALL AREAS UPSTREAM OF THE E&S STAGE 3 LIMITS OF CONSTRUCTION SHALL BE PERMANENTLY STABILIZED BEFORE PROCEEDING WITH THIS STAGE.
2. NOTIFY THE DELAWARE COUNTY CONSERVATION DISTRICT PRIOR TO THE REMOVAL OF THE SEDIMENT BASIN. THE DISTRICT MAY REQUIRE A SITE INSPECTION PRIOR TO THE REMOVAL OF SUCH FACILITY.
3. DECOMMISSION SEDIMENT BASIN "SB1". COMMENCE BY DEWATERING THE BASIN AND THE REMOVAL AND DISPOSAL OF ALL SEDIMENT IN ACCORDANCE WITH THE E&S REQUIREMENTS. REMOVE TEMPORARY SEDIMENT BASIN FEATURES SUCH AS THE RISER, BAFFLE WALL AND CLEANOUT. ENSURE ALL REMAINING E&S BMPS STAY IN PLACE.
4. CONTINUE WITH THE REMAINING EARTHWORK AND CONSTRUCT REMAINING RETAINING WALL. ALONG THE SOUTHERN PORTION OF THE CONSERVATION EASEMENT, BEGIN WALL CONSTRUCTION FROM WEST TO EAST TO ALLOW THE DOWNSTREAM PORTION OF THE DIVERSION SOXX TO REMAIN OPERATIONAL. ONLY REMOVE THE PORTION OF DIVERSION SOXX NEEDED TO CONSTRUCT THE WALL EACH DAY.
5. SEDIMENT BARRIERS BETWEEN WALL AND CONSERVATION EASEMENT SHALL BE MAINTAINED BY HAND. NO MACHINERY ALLOWED IN THIS AREA DURING AND AFTER WALL CONSTRUCTION.
6. INSTALL CONVEYANCE SYSTEM PER E&S STAGE 3 PLANS. TEMPORARILY BLOCK OPENINGS TO SUBSURFACE BASINS "P1". NO CONNECTION ALLOWED TO SUBSURFACE BASIN UNTIL UPSTREAM AREAS ARE PERMANENTLY STABILIZED.
7. INSTALL REMAINING UNDERGROUND UTILITIES.
8. INSTALL REMAINING CURBING, SIDEWALKS, ETC.
9. INITIATE STAGE 3 BUILDING CONSTRUCTION.
10. INSTALL PERMANENT VEGETATION INCLUDING ALL REMAINING LANDSCAPING AND GRASSED AREAS.
11. PERMANENTLY STABILIZE ALL DISTURBED AREAS. PERMANENT STABILIZATION IS DEFINED AS 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.
12. INSTALL BINDER COURSE FOR ALL PAVEMENT AND CONCRETE AREAS.
13. CRITICAL STAGE REQUIRES ENGINEERING OVERSIGHT (SEE PCSM PLAN): CONNECT SUBSURFACE BASIN "P1" TO UPSTREAM CONVEYANCE SYSTEM. CAP ALL TEMPORARY BYPASS PIPES WITH WATER TIGHT SEALS
14. UPON SITE STABILIZATION (UNIFORM COVERAGE OR DENSITY OF 70% ACROSS ALL DISTURBED AREAS) AND AUTHORIZATION FROM THE DELAWARE COUNTY CONSERVATION DISTRICT, REMOVE ALL REMAINING EROSION AND SEDIMENT POLLUTION CONTROL BMPS (SEDIMENT BARRIER, INLET PROTECTION, ETC.). ANY AREA DISTURBED DURING THE REMOVAL OF THE EROSION AND SEDIMENT POLLUTION CONTROL BMPS MUST BE STABILIZED IMMEDIATELY. UPON COMPLETION OF ALL OTHER SITE CONSTRUCTION ACTIVITIES, INSTALL FINAL WEARING COURSE, SIGNAGE AND STRIPING. DEMOBILIZE.
15. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES, REMOVAL OF ALL TEMPORARY BMPS AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OPERATORS SHALL CONTACT THE COUNTY CONSERVATION DISTRICT FOR A FINAL INSPECTION.
16. SUBMIT NOTICE OF TERMINATION (NOT) TO DELAWARE COUNTY CONSERVATION DISTRICT.

RIPARIAN BUFFER NOTES

PERMANENT PROTECTION OF RIPARIAN BUFFERS.
1. EXISTING, CONVERTED AND NEWLY ESTABLISHED RIPARIAN BUFFERS INCLUDING ACCESS EASEMENTS MUST BE PROTECTED IN PERPETUITY THROUGH DEED RESTRICTION, CONSERVATION EASEMENT, LOCAL ORDINANCE, PERMIT CONDITIONS OR ANY OTHER MECHANISMS THAT ENSURE THE LONG-TERM FUNCTIONING AND INTEGRITY OF THE RIPARIAN BUFFER.
2. FOR ANY EXISTING OR NEWLY ESTABLISHED RIPARIAN BUFFER, THE BOUNDARY LIMITS OF THE RIPARIAN BUFFER MUST BE IDENTIFIED AND CLEARLY MARKED.

REPORTING.
PERSONS WHO PROTECT AN EXISTING RIPARIAN BUFFER OR CONVERT OR ESTABLISH A RIPARIAN BUFFER IN ACCORDANCE WITH PA CODE CHAPTER 102, SECTION 102.14, SHALL COMPLETE DATA FORMS PROVIDED BY THE DEPARTMENT AND SUBMIT THE FORMS TO THE DEPARTMENT OR CONSERVATION DISTRICT WITHIN 1 YEAR OF ESTABLISHMENT OR PROTECTION.

LONG TERM BMP OPERATION AND MAINTENANCE SCHEDULE:

PERMANENT STORMWATER MANAGEMENT BMPS:

MAINTENANCE OF THE PERMANENT STORMWATER CONTROL BMPS SHALL BE THE RESPONSIBILITY OF APPLICANT OF THE SUBJECT PROJECT SITE AT THE TIME THAT THE APPLICABLE MAINTENANCE IS REQUIRED. THE APPLICANT OF THE INITIAL NPDES PERMIT IS:

NATIONAL DEVELOPERS, INC.
4605 WEST CHESTER PIKE
NEWTOWN SQUARE, PA 19073
ATTN: ED PEREIRA
PHONE: 610-325-2198
FAX: 610-325-2186
CELL: 484-571-7008
EMAIL: EDP@ndidelco.com

MAINTENANCE REQUIREMENTS FOR THE PERMANENT STORMWATER BMPS CAN BE FOUND IN THE APPROVED POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN (PCSM) AS REQUIRED BY THE NPDES PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES. (A COPY OF THE APPROVED NPDES PERMIT AND PCSM PLAN SHOULD BE KEPT ON-SITE AT ALL TIMES BOTH DURING THE CONSTRUCTION PROCESS AND AFTER CONSTRUCTION HAS BEEN COMPLETED.)

1. RE-FORESTATION AND LANDSCAPE PLANTINGS: PLANTINGS NEED DEEP REGULAR WATERING DURING THE FIRST GROWING SEASON, EITHER NATURAL WATERING VIA RAINFALL, OR PLANNED WATERING VIA CARETAKER. PLANTING IN THE FALL INCREASES THE LIKELIHOOD OF SUFFICIENT RAIN DURING PLANTING ESTABLISHMENT. MULCH WILL ASSIST IN MOISTURE RETENTION IN THE ROOT ZONE OF PLANTINGS, MODERATE SOIL TEMPERATURE, PROVIDE SOME WEED SUPPRESSION AND RETARD EVAPORATION. USE COARSE ORGANIC MULCH THAT IS SLOW TO DECOMPOSE IN ORDER TO MINIMIZE REPEAT APPLICATION. APPLY 2-4 INCH LAYER, LEAVING AIR SPACE AROUND TREE TRUNK TO PREVENT FUNGUS GROWTH. USE A COMBINATION OF WOODCHIPS, LEAVES, AND TWIGS THAT ARE STOCKPILED FOR SIX MONTHS TO A YEAR. WEED COMPETITION LIMITS GROWTH AND SURVIVAL, THEREFORE THE WEEDS SHOULD BE CONTROLLED BY EITHER HERBICIDES, MOWING OR WEED MATS. HERBICIDES ARE A SHORT-TERM MAINTENANCE TECHNIQUE (2-3 YEARS) THAT IS GENERALLY CONSIDERED LESS EXPENSIVE AND MORE FLEXIBLE THAN MOWING, AND WILL RESULT IN A QUICKER ESTABLISHMENT OF THE PLANTINGS. HERBICIDE USE IS REGULATED BY THE PA DEPARTMENT OF AGRICULTURE. PROPER CARE SHOULD BE TAKEN TO ENSURE THAT PROXIMITY TO WATER FEATURES IS CONSIDERED.
   - ANY BARE, DEAD OR DAMAGED LAWN AREAS SHALL BE RE-SEEDED IN ACCORDANCE WITH THE ORIGINAL PROCEDURES AS OUTLINED IN THE EROSION AND SEDIMENT CONTROL PLANS USING THE SAME MIX AND SEEDING RATES. STABILIZATION OF BARE OR DAMAGED AREAS SHALL BE DONE IN A TIMELY FASHION SO AS TO AVOID EXPOSING THE SOIL TO EROSION. IF SEASON PREVENTS THE RE-ESTABLISHMENT OF TURF COVER, EXPOSED AREAS SHOULD BE STABILIZED WITH STRAW OR MULCH AS DESCRIBED IN THE EROSION AND SEDIMENT CONTROL PLANS UNTIL PERMANENT SEEDING CAN BE DONE.
   - IF A TREE OR SHRUB IS SEVERELY DAMAGED OR EXPERIENCES MORE THAN 2/3 DIE BACK, IT SHOULD BE REPLACED IN EITHER THE SPRING OR FALL PLANTING SEASON, WHICHEVER COMES FIRST. THE ONLY EXCEPTION TO THIS IS IF THE REPLACEMENT TREE HAS A FALL TRANSPLANTING HAZARD. REPLACEMENT TREES SHOULD BE PLANTED AT THE SAME SIZE AND CONDITION AS SPECIFIED ON THE LANDSCAPE PLANS. ANY TREE OR SHRUB MAINTENANCE, TREE PRUNING OR PLANT MATERIAL SUBSTITUTION OF SPECIES OR SIZE SHALL BE SUBJECT TO THE APPROVAL OF THE PROJECT LANDSCAPE ARCHITECT.

2. CATCH BASINS AND STORM SEWER CONVEYANCE SYSTEM: ALL CATCH BASINS AND ASSOCIATED CONVEYANCE SYSTEM SHOULD BE INSPECTED FOR CLOGGING AND EXCESSIVE DEBRIS AND SEDIMENT ACCUMULATION AT LEAST FOUR (4) TIMES PER YEAR, AS WELL AS AFTER EVERY STORM GREATER THAN 1 INCH. SEDIMENT LADEN WATER CREATED DURING INLET AND STORM SEWER CLEANING MUST BE CAPTURED BEFORE IT ENTERS THE UNDERGROUND DETENTION FACILITIES. SEDIMENT SHOULD BE DISPOSED OF PROPERLY. IF SIGNS OF FAILURE ARE NOTED, AN ENGINEER OR OTHER QUALIFIED PROFESSIONAL SHOULD BE CONTACTED TO INITIATE THE REPAIR PROCESS.

3. SUBSURFACE INFILTRATION BASIN:
   - CATCH BASINS AND INLETS (UPGRADIENT OF SUBSURFACE INFILTRATION BASIN) SHOULD BE INSPECTED AND CLEANED AT LEAST TWO TIMES PER YEAR AND AFTER RUNOFF EVENTS. STRUCTURES INCLUDE BASIN BOTTOMS, TRASH RACKS, OUTLET STRUCTURES, RIPRAP OR GABION STRUCTURES, AND INLETS.
   - INSPECT THE BASIN AFTER RUNOFF EVENTS AND MAKE SURE THAT RUNOFF DRAINS DOWN WITHIN 72 HOURS. MOSQUITO'S SHOULD NOT BE A PROBLEM IF THE WATER DRAINS IN 72 HOURS. MOSQUITOES REQUIRE A CONSIDERABLY LONG BREEDING PERIOD WITH RELATIVELY STATIC WATER LEVELS. IN THE EVENT THE BASIN TAKES MORE THAN 72 HOURS TO COMPLETELY DEWATER, THE BASIN PIPES AND ASSOCIATED STRUCTURES SHALL BE CLEANED OF ALL DEBRIS AND SILT.
   - ALSO INSPECT FOR ACCUMULATION OF SEDIMENT, DAMAGE TO OUTLET CONTROL STRUCTURES, EROSION CONTROL MEASURES, AND SIGNS OF WATER CONTAMINATION/SPILLS.
   - REMOVE ACCUMULATED SEDIMENT FROM BASIN AS REQUIRED. PROPERLY DISPOSE OF SEDIMENT.

   IF SIGNS OF FAILURE ARE NOTED, AN ENGINEER OR OTHER QUALIFIED PROFESSIONAL SHOULD BE CONTACTED TO INITIATE THE REPAIR PROCESS.

4. EXTENDED DETENTION BASIN: ALL BASIN STRUCTURES EXPECTED TO RECEIVE AND/OR TRAP DEBRIS AND SEDIMENT SHOULD BE INSPECTED FOR CLOGGING AND EXCESSIVE DEBRIS AND SEDIMENT ACCUMULATION AT LEAST FOUR TIMES PER YEAR, AS WELL AS AFTER EACH STORM GREATER THAN 1 INCH.
   - STRUCTURES INCLUDE BASIN BOTTOMS, TRASH RACKS, OUTLET STRUCTURES, RIPRAP OR GABION STRUCTURES, AND INLETS.
   - RECEIVING STRUCTURES SHOULD BE INSPECTED MORE FREQUENTLY IN THE FALL SEASON FOR LEAF DEBRIS.

   SEDIMENT REMOVAL SHOULD BE CONDUCTED WHEN THE BASIN IS COMPLETELY DRY. SEDIMENT SHOULD BE DISPOSED OF PROPERLY AND ONCE SEDIMENT IS REMOVED, DISTURBED AREAS NEED TO BE IMMEDIATELY STABILIZED AND REVEGETATED

   MOWING AND/OR TRIMMING OF VEGETATION SHOULD BE PERFORMED AS NECESSARY TO SUSTAIN THE SYSTEM, BUT ALL DETRITUS SHOULD BE REMOVED FROM THE BASIN.
   - VEGETATED AREAS SHOULD BE INSPECTED ANNUALLY FOR EROSION.
   - VEGETATED AREAS SHOULD BE INSPECTED ANNUALLY FOR UNWANTED GROWTH OF EXOTIC/INVASIVE SPECIES.
   - VEGETATIVE COVER SHOULD BE MAINTAINED AT A MINIMUM OF 95 PERCENT. IF VEGETATIVE COVER HAS BEEN REDUCED BY 10%, VEGETATION SHOULD BE REESTABLISHED.

   IF SIGNS OF FAILURE ARE NOTED, AN ENGINEER OR OTHER QUALIFIED PROFESSIONAL SHOULD BE CONTACTED TO INITIATE THE REPAIR PROCESS.

5. GROUND COVER: ALL DISTURBED AREAS ARE TO BE PREPARED AND SEEDED, OR OTHER PERMANENT GROUND COVER PROVIDED, FOLLOWING FINAL GRADING. GROUND COVER SHOULD BE MAINTAINED AND/OR REPLACED UNTIL PERMANENT STABILIZATION HAS OCCURRED.

6. ROOF DRAINS: GUTTERS, GUTTER LEAF GUARDS AND DOWNSPOUT SHOULD BE INSPECTED FOR CLOGGING AND EXCESSIVE DEBRIS AND SEDIMENT ACCUMULATION AT LEAST FOUR (4) TIMES PER YEAR, AS WELL AS AFTER EVERY STORM GREATER THAN 1 INCH. SEDIMENT SHOULD BE DISPOSED OF PROPERLY.

7. STREET SWEEPING: SWEEP ALL PAVED AREAS, INCLUDING ENTRANCES FROM STREET / HIGHWAY. PARKING LOT SWEEPING SHALL OCCUR WEEKLY. USE REGENERATIVE AIR, VACUUM-ASSISTED SWEEPERS LIKE TYMCO OR EQUAL. SWEEPING SHALL OCCUR AFTER HOURS OR DURING OFF-PEAK HOURS.

8. OTHER MAINTENANCE:
   - BLOW OFF ALL SIDEWALKS AND CORNERS USING POWER BLOWERS. (SERVICE TO BE PROVIDED ON DAYS WHEN LOT CANNOT BE SWEPT, I.E.: HEAVY RAINS, SNOW). FREQUENCY: WEEKLY.
   - EMPTY ALL TRASH RECEPTACLES AND REPLACE LINERS. FREQUENCY: SEVEN (7) TIMES PER WEEK.
   - HAND-PICK ENTIRE LOT FRONT, REAR, AND SIDES, INCLUDING ALL TRASH ENCLOSURES OF VISIBLE TRASH. INCLUDING CATCH BASINS. FREQUENCY: WEEKLY.
   - HAND-PICK ALL LANDSCAPED AREAS. FREQUENCY: WEEKLY.

9. A WRITTEN REPORT DOCUMENTING EACH INSPECTION AND ALL BMP REPAIR AND MAINTENANCE ACTIVITIES MUST BE MAINTAINED AND MADE AVAILABLE FOR REVIEW BY THE COUNTY CONSERVATION DISTRICT AND GREENWICH TOWNSHIP UPON REQUEST.
   MAINTENANCE RECORDS MUST BE RETAINED FOR AT LEAST 10 YEARS.

OTHER MAINTENANCE NOTES:

LANDSCAPE MAINTENANCE:
1. LANDSCAPING SHALL BE INSPECTED BY A NURSERY PROFESSIONAL FOR DISEASE, DAMAGE, AND INSECT INFESTATION ANNUALLY. DISEASED AND INFESTED PLANTING SHALL BE TREATED APPROPRIATELY. DEAD OR DYING PLANTINGS SHALL BE REMOVED AND REPLACED IN KIND. PRUNING, WATERING, AND FERTILIZATION SHALL BE PERFORMED MONTHLY DURING THE GROWING SEASON BY A NURSERY PROFESSIONAL. LANDSCAPING SHALL BE INSPECTED FOR ADEQUATE MULCHING ONCE A MONTH AND AFTER EACH STORM EVENT GREATER THAN ONE (1) INCH. MULCH SHALL BE AT LEAST THREE (3) INCHES DEEP, BUT SHALL BE COVER THE ROOT CROWN OF PLANTS. EARTH SAUCERS SHALL BE MAINTAINED FIVE (5) INCHES IN DEPTH; ANY EROSION OF MULCH SHALL BE CORRECTED TO MINIMUM SAUCER DEPTH.

2. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO NORMAL MAINTENANCE AS WELL AS REPAIR OF STRUCTURAL DAMAGE OR DETERIORATION OF ANY KIND, INCLUDING THAT CAUSED BY SINKHOLES OR OTHER EVENTS. THE TOWNSHIP SHALL HAVE THE RIGHT, BUT NOT THE DUTY, OF ACCESS AT ANY TIME TO INSPECT AND MAINTAIN THE FACILITY AT THE PROPERTY OWNER'S EXPENSE IF THE OWNER SHOULD FAIL TO PROPERLY MAINTAIN THE FACILITY.

RECYCLING AND DISPOSAL OF WASTES FROM PCSM BMPS

1. ALL WASTE FROM POST CONSTRUCTION STORMWATER MANAGEMENT BMPS, SUCH AS SILT, TRASH, GRASS CLIPPINGS, ETC., SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1., AND 287.1 ET SEQ. NO WASTES SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
2. IN THE EVENT OF A SINKHOLE FORMATION, UNDER THE SUPERVISION OF A PROFESSIONAL GEOLOGIST OR A LICENSED GEOTECHNICAL ENGINEER, MATERIAL DEEMED UNSUITABLE FOR BACKFILL MUST BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S (PADEP) SOLID WASTE MANAGEMENT REGULATIONS.

CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN FOR WHICH A LICENSED PROFESSIONAL OR DESIGNEE SHALL BE PRESENT ON SITE:

THE OVERALL INSTALLATION OF THE FOLLOWING STRUCTURAL PCSM BMPS ARE SUBJECT TO CONSTRUCTION ENGINEERING OVERSIGHT.

- CONSTRUCT SUBSURFACE INFILTRATION BASINS "P1", "P2", "P3", "P4" AND "P5" AND SUBSURFACE EXTENDED DETENTION BASIN "P6", INCLUDING OUTFALL PIPES. DO NOT CONNECT TO UPSTREAM CONVEYANCE SYSTEM AT THIS TIME.
- CONNECT SUBSURFACE BASINS "P2", "P3", "P4", "P5" AND "P6" TO UPSTREAM CONVEYANCE SYSTEM. CAP ALL TEMPORARY BYPASS PIPES WITH WATER TIGHT SEALS.
- CONNECT SUBSURFACE BASIN "P1" TO UPSTREAM CONVEYANCE SYSTEM. CAP ALL TEMPORARY BYPASS PIPES WITH WATER TIGHT SEALS.

PERMANENT STABILIZATION NOTES:

A. STANDARD FOR SEEDING AND SOIL TREATMENT FOR PERMANENT VEGETATIVE COVER:
a. SITE PREPARATION:
   1. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, ANCHORING AND MAINTENANCE.
   2. ii. SUBSOIL SHOULD BE TESTED BY A REPUTABLE LABORATORY FOR THE LIME REQUIREMENT; AND LIMESTONE, IF NEEDED, SHOULD BE APPLIED TO BRING SOIL PH TO 6.5 AND INCORPORATED INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF FOUR (4) INCHES.
   3. iii. IMMEDIATELY PRIOR TO TOPSOIL DISTRIBUTION, THE SURFACE SHOULD BE SCARIFIED TO PROVIDE A GOOD BOND WITH THE TOPSOIL.
b. APPLYING TOPSOIL:
   AREAS WHICH ARE TO BE TOP-SOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES (6 TO 12 INCHES ON COMPACTED SOILS) PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING, I.E. YARDS.
   1. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING SOIL STRUCTURE.
   2. UNIFORM APPLICATION TO A DEPTH OF FIVE (5) INCHES (UNSETTLED) IS RECOMMENDED. SOILS WITH A PH OF 4.0 OR LESS, OR CONTAINING IRON SULFIDE, SHALL BE COVERED WITH A MINIMUM DEPTH OF TWELVE (12) INCHES OF SOIL HAVING A PH OF 6.0 OR MORE.
c. SEED BED PREPARATION:
   1. PERFORM ALL CULTURAL OPERATIONS AT RIGHT ANGLES TO THE SLOPE.
   2. APPLY 10-20-20 OR EQUIVALENT RATED FERTILIZER AT A RATE OF 500 LBS./ACRE OR 11 LBS./1,000 S.F.
   3. APPLY 300 LBS. OF 38-0-0 PER ACRE OR EQUIVALENT OF SLOW RELEASE NITROGEN.
   4. APPLY PULVERIZED DOLOMITIC LIMESTONE AT A RATE OF 4.0 TON/ACRE OR 184 LBS./1,000 S.F.
   5. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF FOUR (4) INCHES. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM FINE SEEDBED IS PREPARED.
   6. REMOVE FROM THE SURFACE ALL STONES TWO (2) INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLODS, LUMPS OR OTHER UNSUITABLE MATERIAL.
   7. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RE-TILLED AND FIRMED AS ABOVE.
d. GENERAL SEEDING RATES:

PERENNIAL RYEGRASS	1/2 LB./1,000 S.F.
KENTUCKY BLUEGRASS	1.0 LB./1,000 S.F.
RED FESCUE	1-1/2 LBS./1,000 S.F.
SPREADING FESCUE	1-1/2 LBS./1,000 S.F.
FERTILIZER (20-10-10)	14 LBS./1,000 S.F.
HAY OR STRAW MULCH	138 LBS./1,000 S.F. (OR 3 TONS/ACRE)

e. ERNST 5311 CONSERVATION MIX (ERNMX-114) SEEDING RATES:

FESTUCA RUBRA, PENNALAWN	
POA PRATENSIS, ALENE	
POA PRATENSIS, CACHE	
LOLIUM MULITIFLORUM	
LOLIUM PERENNE	
PENNLAWN CREEPING RED FESCUE	
ALENE KENTUCKY BLUEGRASS	
CACHE KENTUCKY BLUEGRASS	
ANNUAL RYEGRASS	
TURF TYPE PERENNIAL RYEGRASS	4 LB./1,000 S.F.
FERTILIZER (20-10-10)	14 LBS./1,000 S.F.
HAY OR STRAW MULCH	138 LBS./1,000 S.F. (OR 3 TONS/ACRE)

f. IRRIGATION - (WHERE FEASIBLE):
i. WATER A MINIMUM OF 1/4" TWICE A DAY UNTIL VEGETATION IS WELL ESTABLISHED, ESPECIALLY WHEN SEEDING IS PERFORMED IN ABNORMALLY DRY OR HOT WEATHER OR ON DROUGHTY SITES.

B. STANDARD FOR PERMANENT STABILIZATION WITH SOD:
a. METHODS AND MATERIALS:
   1. CULTIVATED SOD IS PREFERRED OVER NATIVE OR PASTURE SOD. SPECIFY "CERTIFIED SOD", OR OTHER HIGH-QUALITY CULTIVATED SOD.
   2. SOD SHOULD BE FREE OF WEEDS AND UNDESIRABLE COARSE WEEDY GRASSES.
   3. SOD SHOULD BE OF UNIFORM THICKNESS, APPROXIMATELY 5/8 INCH, PLUS OR MINUS 1/4 INCH, AT THE TIME OF CUTTING (EXCLUDES TOP GROWTH).
   4. SOD SHOULD BE VIGOROUS AND DENSE AND BE ABLE TO RETAIN ITS OWN SHAPE AND WEIGHT WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP FROM THE UPPER 10% OF THE STRIP. BROKEN PADS OR TORN AND UNEVEN ENDS WILL NOT BE ACCEPTABLE.
   5. FOR DROUGHT/DRY SITES, A SOD OF KENTUCKY 31 TALL FESCUE AND BLUEGRASS IS PREFERRED OVER A STRAIGHT BLUEGRASS SOD.
   6. ONLY MOIST, FRESH, UN-HEATED SOD SHOULD BE USED. SOD SHOULD BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 36 HOURS, OTHERWISE IT SHALL BE REJECTED.
b. SITE PREPARATION:
   1. SEE STANDARD FOR LAND GRADING.
c. SOIL PREPARATION:
   1. SEE SPECIFICATION FOR SEEDING AND SOIL TREATMENT FOR PERMANENT VEGETATIVE COVER.
d. SOD PLACEMENT:
   1. SOD STRIPS SHOULD BE LAID ON THE CONTOUR, NEVER UP AND DOWN THE SLOPE, STARTING AT THE BOTTOM OF THE SLOPE AND WORKING UP. ON STEEP SLOPES, THE USE OF LADDERS WILL FACILITATE THE WORK AND PREVENT DAMAGE TO THE SOD. DURING PERIODS OF HIGH TEMPERATURE, LIGHTLY IRRIGATE THE SOIL IMMEDIATELY PRIOR TO APPLYING THE SOD.
   2. PLACE SOD STRIPS WITH SNUG EVEN JOINTS THAT ARE STAGGERED. OPEN SPACES WILL RESULT IN EROSION AND SEDIMENT POLLUTION.
   3. ROLL OR TAMP SOD IMMEDIATELY FOLLOWING PLACEMENT TO ENSURE SOLID CONTACT OF ROOT MAT AND SOIL SURFACE. DO NOT OVERLAP SOD. ALL JOINTS SHOULD BE BUTTED TIGHTLY IN ORDER TO PREVENT VOIDS, WHICH WOULD CAUSE DRYING OF THE ROOTS.
   4. ON SLOPES GREATER THAN 3:1, SECURE SOD TO SURFACE SOIL WITH WOOD PEGS, WIRE STAPLES, OR SPLIT SHINGLES (8 TO 10 INCHES LONG BY 3/4 INCH WIDE).
   5. SURFACE WATER CANNOT ALWAYS BE DIVERTED FROM FLOWING OVER THE FACE OF THE SLOPE, BUT A CAPPING STRIP OF HEAVY JUTE OR PLASTIC NETTING, PROPERLY SECURED, ALONG THE CROWN OF THE SLOPE AND EDGES WILL PROVIDE EXTRA PROTECTION AGAINST LIFTING AND UNDERCUTTING OF SOD. THE SAME TECHNIQUE CAN BE USED TO ANCHOR SOD IN WATER-CARRYING CHANNELS AND OTHER CRITICAL AREAS. WIRE STAPLES MUST BE USED TO ANCHOR NETTING IN CHANNEL WORK.
   6. PENETRATE THE SOIL LAYER BENEATH THE SOD TO A DEPTH OF 4 INCHES. MAINTAIN OPTIMUM MOISTURE FOR AT LEAST TWO (2) WEEKS.
e. TOPDRESSING:
   1. IF SLOW RELEASE NITROGEN (300 LBS. OF 38-0-0 PER ACRE OR EQUIVALENT) IS USED IN ADDITION TO SUGGESTED FERTILIZER, THEN A FOLLOW-UP OF TOPDRESSING IS NOT MANDATORY.
   2. SPRING INSTALLATION OF SOD WILL REQUIRE AN APPLICATION OF FERTILIZER SUCH AS 10-20-10 OR EQUIVALENT AT 400 LBS./ACRE OR 10 LBS./1,000 S.F. BETWEEN MARCH 15 AND MAY 1.
   3. FALL INSTALLATION OF SOD WILL REQUIRE THE ABOVE BETWEEN SEPTEMBER 1 AND OCTOBER 15.

ADDITIONAL STABILIZATION NOTES:

1. PERMANENT STABILIZATION IS DEFINED AS 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.
2. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE THE DISTURBED AREAS. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE RE-DISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINAL GRADE OR WHICH WILL NOT BE RE-DISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.
3. AN EROSION CONTROL BLANKET WILL BE INSTALLED ON ALL DISTURBED SLOPES STEEPER THAN 3:1, ALL AREAS OF CONCENTRATED FLOWS, AND DISTURBED AREAS WITHIN 50' OF WATERS OF THE COMMONWEALTH.

MINIMIZE IMPERVIOUS AREAS

TO THE MAXIMUM EXTENT POSSIBLE, THE SITE HAS BEEN DESIGNED TO MINIMIZE THE AMOUNT OF IMPERVIOUS COVERAGE, BY EFFICIENTLY DESIGNING THE PARKING AND DRIVE AISLES, WHILE MAINTAINING SUFFICIENT PARKING TO SATISFY THE FACILITY REQUIREMENTS. ALSO, PER THE SEQUENCE OF CONSTRUCTION, DISTURBED AREAS WILL BE STABILIZED AS SOON AS PRACTICAL, TO KEEP NON PERVIOUS AREAS TO A MINIMUM. SEE THE SEQUENCE OF CONSTRUCTION IN THE EROSION AND SEDIMENT CONTROL NARRATIVE.

MAXIMIZE THE PROTECTION OF EXISTING DRAINAGE FEATURES AND EXISTING VEGETATION

EXISTING DRAINAGE FEATURES AND VEGETATION WILL BE PROTECTED AFTER CONSTRUCTION BY ENSURING THE SITE REMAINS STABILIZED AS DEPICTED ON THE PCSM LANDSCAPING PLAN SHEET "LA" AND POST CONSTRUCTION STORMWATER MANAGEMENT PLAN SHEET "PCS". ALSO, A CONSERVATION EASEMENT EXISTS ALONG LANGFORD RUN, WHICH WILL BE PROTECTED DURING CONSTRUCTION AND POST DEVELOPMENT.

MINIMIZE LAND CLEARING AND GRADING

TO THE MAXIMUM EXTENT POSSIBLE, THE SITE HAS BEEN DESIGNED TO MINIMIZE LAND GRADING, BY EFFICIENTLY DESIGNING THE PARKING AND DRIVE AISLES, WHILE MAINTAINING SUFFICIENT PARKING TO SATISFY THE FACILITY REQUIREMENTS. WITH RESPECT TO CLEARING, THE PORTION OF THE SITE TO BE DEVELOPED IS ALREADY CLEARED. THE WOODED AREAS ALONG THE STREAM WILL BE PROTECTED DURING CONSTRUCTION.

UTILIZE OTHER STRUCTURAL OR NONSTRUCTURAL BMPS THAT PREVENT OR MINIMIZE CHANGE IN STORMWATER RUNOFF

BY ENSURING THAT ALL BMPS ARE OPERATIONAL THROUGH REGULAR SCHEDULED INSPECTIONS AND MAINTENANCE, AND ENSURING REPAIRS ARE INSTITUTED IN A TIMELY FASHION IN ACCORDANCE WITH THE POST CONSTRUCTION STORMWATER MANAGEMENT PLAN, THE DEVELOPMENT SHOULD NOT GENERATE AN INCREASE IN STORMWATER RUNOFF.

RECEIVING SURFACE WATERS

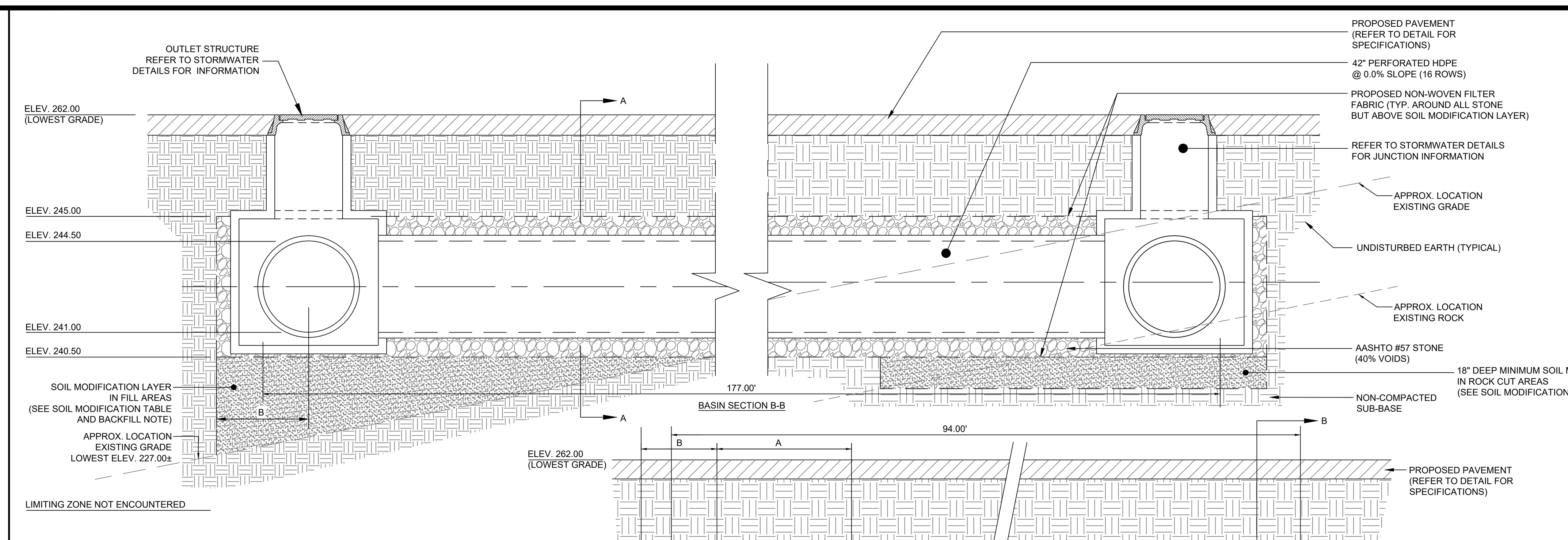
LANGFORD RUN
DESIGNATED USE : WARM WATER FISHES - MIGRATORY FISH (WWF - MF)
EXISTING USE : NOT SPECIFIED

GEOLOGICAL FORMATIONS / SOIL CONDITIONS

THE SITE IS NOT LOCATED IN AN AREA KNOWN FOR NATURALLY OCCURRING GEOLOGICAL FORMATIONS OR SOIL CONDITIONS THAT MAY HAVE THE POTENTIAL TO CAUSE POLLUTION DURING EARTH DISTURBANCE ACTIVITIES. IN THE EVENT ANY GEOLOGICAL FORMATION OR SOIL CONDITIONS ARE DISCOVERED DURING CONSTRUCTION, THE PERMITTEE SHALL NOTIFY THE ENGINEER OF RECORD AND COUNTY CONSERVATION DISTRICT FOR ACTIONS TO BE TAKEN.

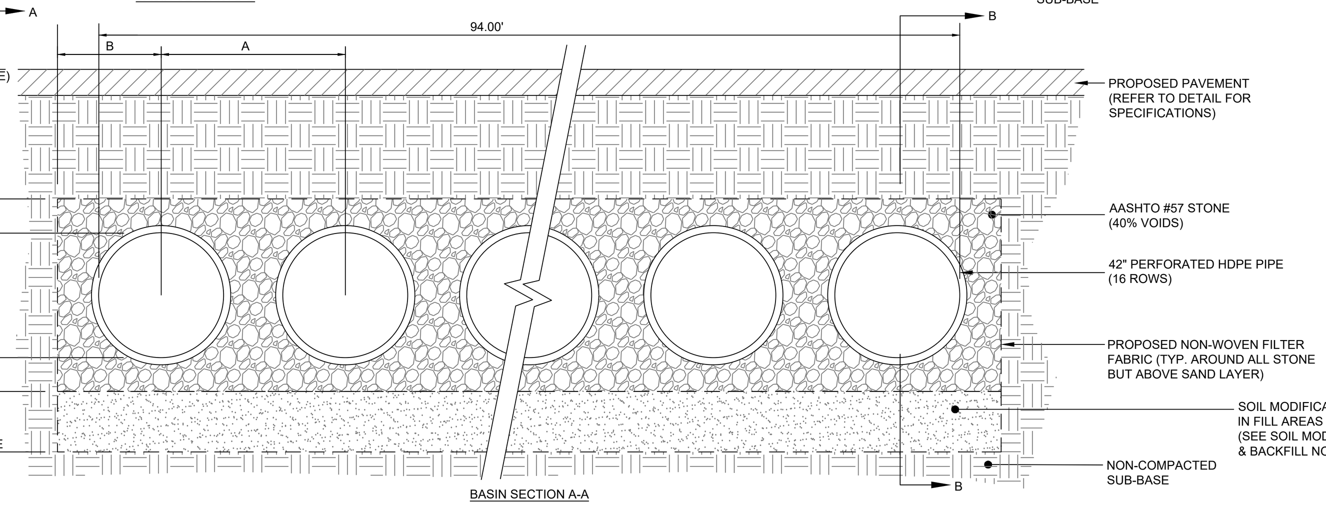
RYAN T. WHITMORE
PROFESSIONAL ENGINEER
NOT FOR CONSTRUCTION
LANDCORE Engineering Consultants, P.C.

PROJECT No: 140012
PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA
TITLE: POST CONSTRUCTION STORMWATER MANAGEMENT NOTES
SCALE: (H) AS NOTED (V) -
DATE: 2017 - 12 - 22
SHEET: NP
REV. No: 0



SOIL MODIFICATION TABLE FOR K3 PERMEABILITY SOIL CLASS								
PERMISSIBLE SOIL TYPES, BASED ON USDA CLASSIFICATION	RANGES OF USDA PARTICLE SIZE PERCENTAGE						TYPICAL INFILTRATION RATES FOR K3 PERMISSIBLE SOIL TYPES (IN/HR)	
	SAND		SILT		CLAY		MIN	MAX
	MIN	MAX	MIN	MAX	MIN	MAX		
SANDY, LOAM SAND	45	70	0	50	20	30	2.0	6.0

SIZE	A	B
42"	6.00'	3.75'



CONSTRUCTION GUIDELINES AND NOTES

- AREAS FOR PROPOSED INFILTRATION SYSTEMS SHALL BE CLEARLY MARKED WITH SILT FENCING BEFORE ANY SITE WORK BEGINS TO AVOID SOIL DISTURBANCE AND COMPACTION DURING CONSTRUCTION. IF AREAS ARE COMPACTED DURING CONSTRUCTION ADDITIONAL INFILTRATION TESTING WILL BE REQUIRED.
- STOCKPILES SHOULD NOT BE PLACED OVER THE INFILTRATION BASIN AREAS.
- UPON SITE STABILIZATION (SEE CONSTRUCTION SEQUENCE), EXCAVATE INFILTRATION AREA TO PROPOSED DEPTHS. NOTE: HEAVY DUTY EQUIPMENT IS NOT ALLOWED WITHIN THE LIMITS OF THE INFILTRATION BED TO AVOID COMPACTION.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE COMMENCEMENT OF THE INFILTRATION BASIN EXCAVATION FOR INSPECTION.
- EXCAVATION OF THE INFILTRATION BASIN SHOULD BE COMPLETED FROM THE PERIMETER OF THE PROPOSED BMP WHERE POSSIBLE. WHERE THE EXCAVATION CANNOT BE COMPLETED FROM THE PERIMETER OF THE BMP, BULK EARTHWORK CAN BE COMPLETED TO AN ELEVATION WHICH IS ONE (1) FOOT ABOVE THE INFILTRATION BOTTOM ELEVATION. EXCAVATION FROM THIS POINT ON SHOULD BE COMPLETED WITH A LIGHT DUTY MACHINE (BOBCAT OR APPROVED EQUAL) PLACED ON THE AREAS CONTAINING THE ONE (1) FOOT OF MATERIAL. AS THE EXCAVATION OF THE ONE (1) FOOT OF MATERIAL PROCEEDS, THE INFILTRATION SURFACE SHOULD BE SCARIFIED. AGGREGATE BACKFILL SHOULD NOT BE DUMPED ONTO THE PREPARED INFILTRATION SURFACE BY TRUCK, BUT SHOULD BE SPREAD WITH THE MACHINE PLACING/SPREADING THE STONE ON THE PERIMETER OF THE INFILTRATION SURFACE OR TRACKING OVER A MINIMUM OF ONE (1) FOOT AGGREGATE.
- THE USE OF LOW GROUND PRESSURE (LGP) MACHINES IS ALLOWED AS LONG AS THE SPECIFICATIONS OF THE MACHINE ARE VERIFIED AND APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE PLACEMENT STONE BED AND PIPING FOR INSPECTION AND RECOMMENDATION IF ADDITIONAL INFILTRATION TESTING IS REQUIRED.
- PLACE GEOTEXTILE AND RECHARGE BED AGGREGATE IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION TO PREVENT ACCUMULATION OF DEBRIS OR SEDIMENT. PREVENT RUNOFF AND SEDIMENT FROM ENTERING THE STORAGE BED DURING THE PLACEMENT OF THE GEOTEXTILE AND AGGREGATE BED.
- PLACE GEOTEXTILE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF 18 INCHES. FABRIC SHALL BE SECURED AT LEAST 4 FEET OUTSIDE OF BED.
- INSTALL AGGREGATE COURSE IN LIFTS OF 6-8 INCHES. LIGHTLY COMPACT EACH LAYER WITH EQUIPMENT, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
- COMPLETE SURFACE GRADING ABOVE SUBSURFACE INFILTRATION SYSTEM, USING SUITABLE EQUIPMENT TO AVOID EXCESS COMPACTION.
- THE BOTTOM STONE SUBBASE SHOULD BE SPREAD BY HAND.
- THE BOTTOM OF THE INFILTRATION BED SHALL BE AT A LEVEL GRADE.

SEQUENCE OF CONSTRUCTION

- EXCAVATE UNDERGROUND BASIN AREA TO PROPOSED DEPTHS.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE COMMENCEMENT OF THE UNDERGROUND BASIN EXCAVATION FOR INSPECTION.
- INSTALL SOIL MODIFICATION LAYER IN ALL FILL AREAS.
- PLACE GEOTEXTILE AND BED AGGREGATE. PREVENT RUNOFF AND SEDIMENT FROM ENTERING THE STORAGE BED DURING THE PLACEMENT OF THE GEOTEXTILE AND AGGREGATE BED.
- PLACE GEOTEXTILE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF 18 INCHES. FABRIC SHALL BE SECURED AT LEAST 4 FEET OUTSIDE OF BED.
- INSTALL AGGREGATE AND STORAGE PIPES TO GRADES INDICATED ON THE DRAWINGS.
- BACKFILL UNDERGROUND BASIN WITH APPROPRIATE FILL TO PROPOSED GRADE AS SHOWN ON THE GRADING PLAN.
- DO NOT CONNECT UPSTREAM STORM SEWER UNTIL SITE HAS BEEN FULLY STABILIZED. THE SITE IS FULLY STABILIZED WHEN A UNIFORM COVERAGE OR DENSITY OF 70% ACROSS ALL DISTURBED AREAS HAS BEEN ACHIEVED.

GEOTEXTILE SPECIFICATION

GEOTEXTILE SHALL BE NON-WOVEN, RATED FOR SEPARATION AND DRAINAGE IN ACCORDANCE WITH PENNDOT PUBLICATION 408 SPECIFICATION FOR CLASS "4", TYPE "A" GEOTEXTILE - US FABRICS US 270NW OR APPROVED EQUAL.

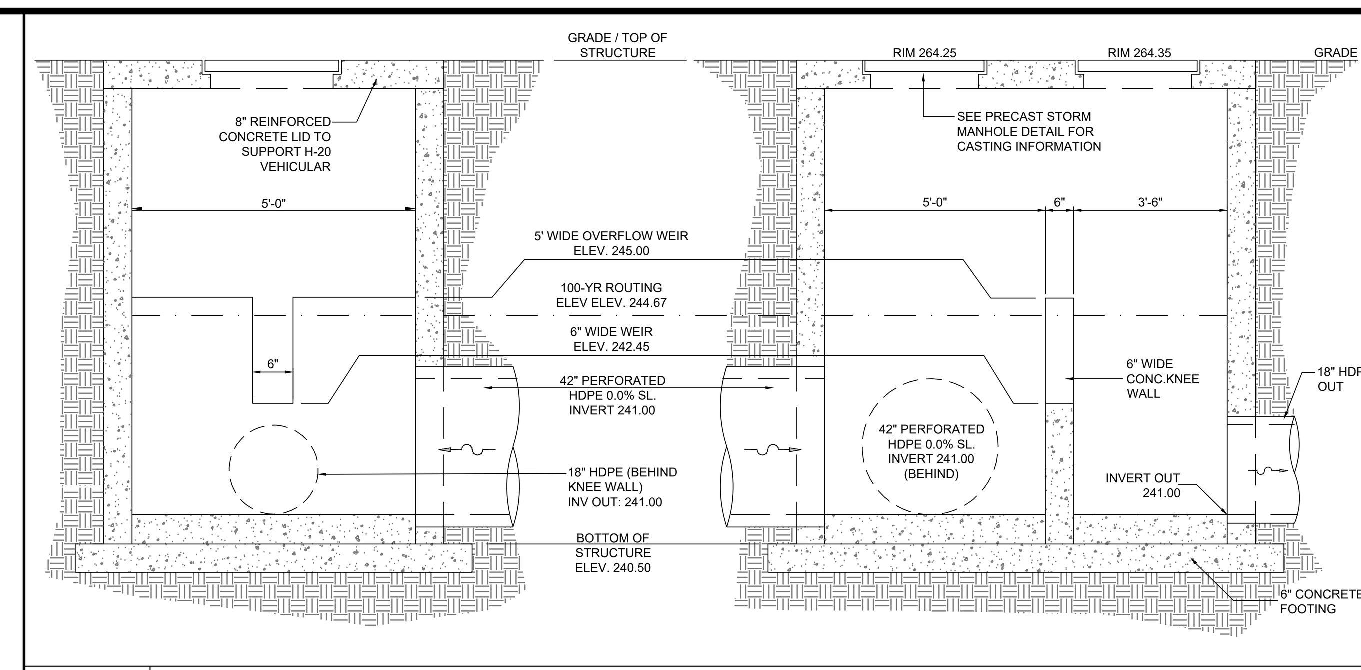
BACKFILL NOTE:

- IN AREAS OF FILL, CONTRACTOR SHALL COORDINATE WITH ON-SITE GEOTECHNICAL ENGINEER TO ENSURE THE SOIL MODIFICATION LAYER MATERIAL IS ADEQUATE AS STRUCTURAL BACKFILL FOR BASIN INSTALLATION. A COPY OF BACKFILL SPECIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.
- PRIOR TO INSTALLING THE SOIL MODIFICATION LAYER, A SAMPLE SOIL MODIFICATION LAYER SHALL BE TESTED BY THE ON-SITE GEOTECHNICAL ENGINEER TO ENSURE THE DESIGN INFILTRATION RATES ARE ACHIEVED. A COPY OF THE RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

INFILTRATION TESTING DURING CONSTRUCTION:
AT THE TIME OF CONSTRUCTION, CONFIRMATION INFILTRATION TESTS SHALL BE PERFORMED AFTER PLACEMENT OF THE SOIL MODIFICATION LAYER AT A RATE OF 3 TEST PER BMP ACRE. THE FIELD TESTING SHALL BE WITNESSED BY THE TOWNSHIP ENGINEER.

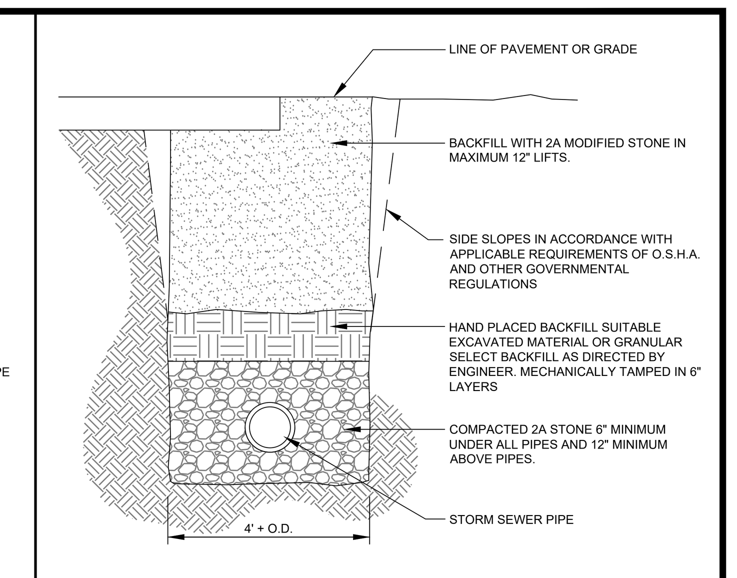
03 SUBSURFACE INFILTRATION BASIN P-1

NOT TO SCALE



01 SUBSURFACE INFILTRATION BASIN P-1 OUTLET STRUCTURE NO. D705

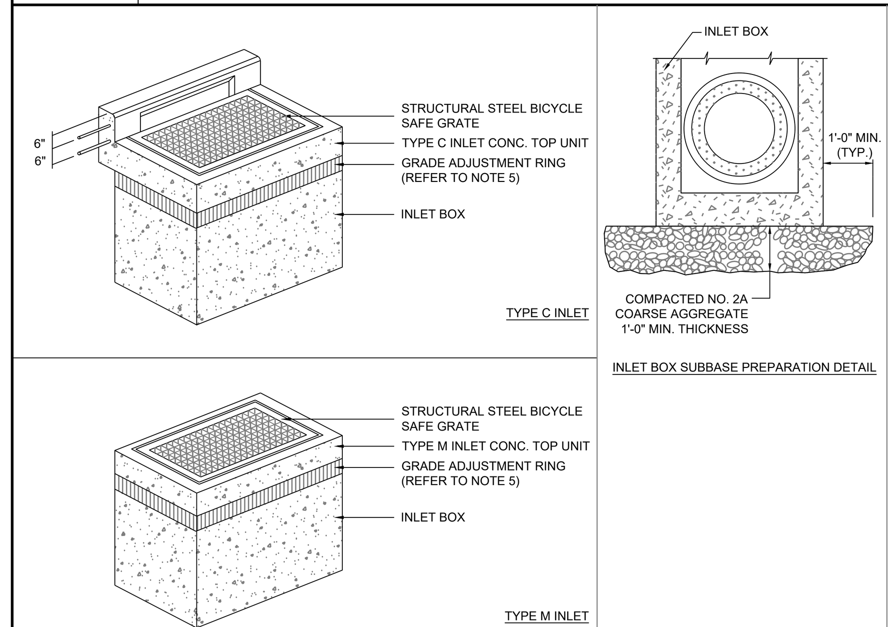
NOT TO SCALE



EXCAVATIONS IN EXISTING PAVED ROADWAYS SHALL BE COORDINATED WITH THE LOCAL PERMITTING AGENCY, AND ALL EXCAVATION SHALL BE PAVED WITH TEMPORARY BITUMINOUS PAVEMENT FROM THE DATE OF ORIGINAL EXCAVATION UNTIL PERMANENT PAVEMENT IS INSTALLED. (MINIMUM = 90 DAYS, MAXIMUM = 120 DAYS)

02 STORM PIPE BEDDING

NOT TO SCALE

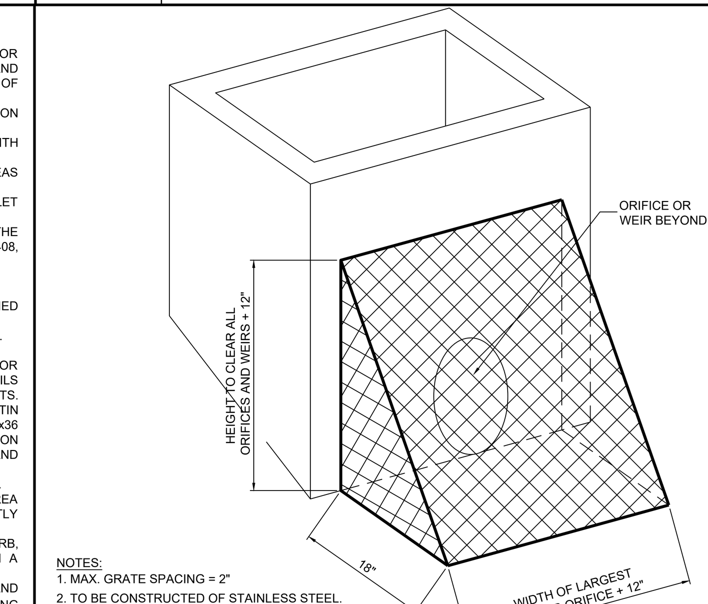


NOTES:

1. THIS DETAIL DEPICTS THE VARIOUS COMPONENTS REQUIRED FOR COMPLETE INLET ASSEMBLIES. FOR INDIVIDUAL COMPONENTS AND OTHER SPECIAL DETAILS, SEE THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION ROADWAY CONSTRUCTION DETAILS (RC-34).
2. EACH TYPE OF INLET SHOWN IS SUITED FOR A PARTICULAR SITUATION AS FOLLOWS:
   - 2.1. TYPE C INLET IS DESIGNATED FOR INSTALLATION WITH NON-MOUNTABLE CURBS.
   - 2.2. TYPE M INLET IS DESIGNATED FOR INSTALLATION IN MEDIAN AREAS AND MOUNTABLE CURBS.
3. THE SELECTION OF COMPONENTS TO ACHIEVE A SPECIFIED INLET ASSEMBLY IS THE CONTRACTORS RESPONSIBILITY.
4. CONSTRUCT IN ACCORDANCE WITH THE REQUIREMENTS OF THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 408, SECTION 605, FOR INLET ASSEMBLIES.
5. USE PRECAST CONCRETE OR MASONRY GRADE ADJUSTMENT RINGS.
6. INLETS SHALL HAVE FORMED CONCRETE FLOW CHANNELS.
7. INLET GRATES SHALL BE INSTALLED IN INLET TOPS TO FIT FINISHED GRADE.
8. INLET GRATES SHALL BE STRUCTURAL STEEL BICYCLE SAFE GRATES.
9. INLETS 5 FEET AND DEEPER REQUIRE STEPS.
10. THIS DETAIL DEPICTS THE SHAPE AND DIMENSIONS REQUIRED FOR UNIFORMITY AND COMPATIBILITY. IT DOES NOT INCLUDE DETAILS REQUIRED FOR MANUFACTURING AND HANDLING PRECAST TOP UNITS. ONLY TOP UNITS SUPPLIED BY A MANUFACTURER LISTED IN BULLETIN 15 SHALL BE PERMITTED. FOR A BULLETIN 15 LISTING, SUBMIT A 22x36 REPRODUCIBLE SHOP DRAWING TO THE BUREAU OF CONSTRUCTION AND MATERIALS, MATERIALS AND TESTING DIVISION, FOR REVIEW AND APPROVAL.
11. CAST-IN-PLACE TOP UNITS MAY BE MONOLITHIC WITH THE INLET BOX.
12. PROVIDE ANGLES EMBEDDED IN THE CONCRETE AS A BEARING AREA FOR THE GRATE FOR ALL TOP UNITS WHICH SEAT THE GRATE DIRECTLY WITHIN THE UNIT.
13. PLACE A TYPE M INLET ADJACENT TO THE BACK EDGE OF THE CURB, FLUSH WITH THE PAVEMENT SURFACE, WHEN REQUIRED WITHIN A MOUNTABLE CURB SECTION.
14. DOWEL TYPE C INLET TOP UNITS WITH (2) No 8 x 1'-0" DOWEL BARS AND PLACE ¼" PREMOLDED EXPANSION JOINT FILLER WHEN CONNECTING TO ADJACENT CURB SECTIONS.

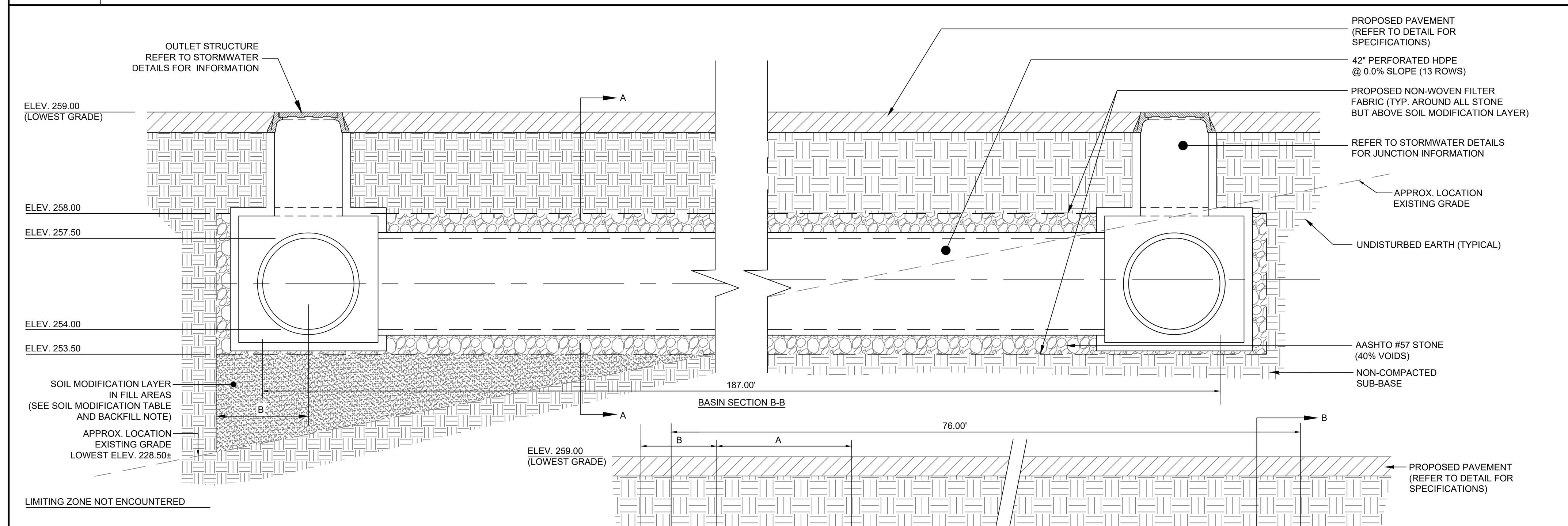
04 STORM SEWER INLETS

NOT TO SCALE



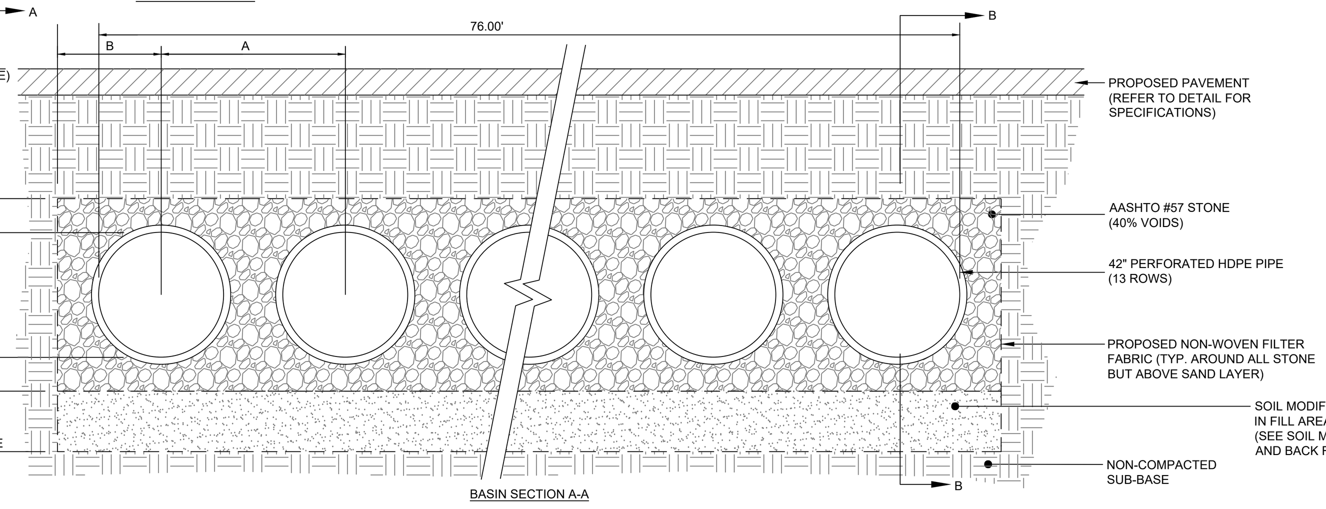
NOTES:
1. MAX. GRATE SPACING = 2"
2. TO BE CONSTRUCTED OF STAINLESS STEEL.
3. RACK MUST BE HINGED OR REMOVABLE FOR ACCESS.
4. RACK MUST COMPLETELY SURROUND ORIFICE AREA.

05 TRASH RACK



SOIL MODIFICATION TABLE FOR K3 PERMEABILITY SOIL CLASS								
PERMISSIBLE SOIL TYPES, BASED ON USDA CLASSIFICATION	RANGES OF USDA PARTICLE SIZE PERCENTAGE						TYPICAL INFILTRATION RATES FOR K3 PERMISSIBLE SOIL TYPES (IN/HR)	
	SAND		SILT		CLAY		MIN	MAX
	MIN	MAX	MIN	MAX	MIN	MAX		
SANDY, LOAM SAND	45	70	0	50	20	30	2.0	6.0

SIZE	A	B
42"	6.00'	3.75'



CONSTRUCTION GUIDELINES AND NOTES

- AREAS FOR PROPOSED INFILTRATION SYSTEMS SHALL BE CLEARLY MARKED WITH SILT FENCING BEFORE ANY SITE WORK BEGINS TO AVOID SOIL DISTURBANCE AND COMPACTION DURING CONSTRUCTION. IF AREAS ARE COMPACTED DURING CONSTRUCTION ADDITIONAL INFILTRATION TESTING WILL BE REQUIRED.
- STOCKPILES SHOULD NOT BE PLACED OVER THE INFILTRATION BASIN AREAS.
- UPON SITE STABILIZATION (SEE CONSTRUCTION SEQUENCE), EXCAVATE INFILTRATION AREA TO PROPOSED DEPTHS. NOTE: HEAVY DUTY EQUIPMENT IS NOT ALLOWED WITHIN THE LIMITS OF THE INFILTRATION BED TO AVOID COMPACTION.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE COMMENCEMENT OF THE INFILTRATION BASIN EXCAVATION FOR INSPECTION.
- EXCAVATION OF THE INFILTRATION BASIN SHOULD BE COMPLETED FROM THE PERIMETER OF THE PROPOSED BMP WHERE POSSIBLE. WHERE THE EXCAVATION CANNOT BE COMPLETED FROM THE PERIMETER OF THE BMP, BULK EARTHWORK CAN BE COMPLETED TO AN ELEVATION WHICH IS ONE (1) FOOT ABOVE THE INFILTRATION BOTTOM ELEVATION. EXCAVATION FROM THIS POINT ON SHOULD BE COMPLETED WITH A LIGHT DUTY MACHINE (BOBCAT OR APPROVED EQUAL) PLACED ON THE AREAS CONTAINING THE ONE (1) FOOT OF MATERIAL. AS THE EXCAVATION OF THE ONE (1) FOOT OF MATERIAL PROCEEDS, THE INFILTRATION SURFACE SHOULD BE SCARIFIED. AGGREGATE BACKFILL SHOULD NOT BE DUMPED ONTO THE PREPARED INFILTRATION SURFACE BY TRUCK, BUT SHOULD BE SPREAD WITH THE MACHINE PLACING/SPREADING THE STONE ON THE PERIMETER OF THE INFILTRATION SURFACE OR TRACKING OVER A MINIMUM OF ONE (1) FOOT AGGREGATE.
- THE USE OF LOW GROUND PRESSURE (LGP) MACHINES IS ALLOWED AS LONG AS THE SPECIFICATIONS OF THE MACHINE ARE VERIFIED AND APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE PLACEMENT STONE BED AND PIPING FOR INSPECTION AND RECOMMENDATION IF ADDITIONAL INFILTRATION TESTING IS REQUIRED.
- PLACE GEOTEXTILE AND RECHARGE BED AGGREGATE IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION TO PREVENT ACCUMULATION OF DEBRIS OR SEDIMENT. PREVENT RUNOFF AND SEDIMENT FROM ENTERING THE STORAGE BED DURING THE PLACEMENT OF THE GEOTEXTILE AND AGGREGATE BED.
- PLACE GEOTEXTILE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF 18 INCHES. FABRIC SHALL BE SECURED AT LEAST 4 FEET OUTSIDE OF BED.
- INSTALL AGGREGATE COURSE IN LIFTS OF 6-8 INCHES. LIGHTLY COMPACT EACH LAYER WITH EQUIPMENT, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
- COMPLETE SURFACE GRADING ABOVE SUBSURFACE INFILTRATION SYSTEM, USING SUITABLE EQUIPMENT TO AVOID EXCESS COMPACTION.
- THE BOTTOM STONE SUBBASE SHOULD BE SPREAD BY HAND.
- THE BOTTOM OF THE INFILTRATION BED SHALL BE AT A LEVEL GRADE.

SEQUENCE OF CONSTRUCTION

- EXCAVATE UNDERGROUND BASIN AREA TO PROPOSED DEPTHS.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE COMMENCEMENT OF THE UNDERGROUND BASIN EXCAVATION FOR INSPECTION.
- INSTALL SOIL MODIFICATION LAYER IN ALL FILL AREAS.
- PLACE GEOTEXTILE AND BED AGGREGATE. PREVENT RUNOFF AND SEDIMENT FROM ENTERING THE STORAGE BED DURING THE PLACEMENT OF THE GEOTEXTILE AND AGGREGATE BED.
- PLACE GEOTEXTILE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF 18 INCHES. FABRIC SHALL BE SECURED AT LEAST 4 FEET OUTSIDE OF BED.
- INSTALL AGGREGATE AND STORAGE PIPES TO GRADES INDICATED ON THE DRAWINGS.
- BACKFILL UNDERGROUND BASIN WITH APPROPRIATE FILL TO PROPOSED GRADE AS SHOWN ON THE GRADING PLAN.
- DO NOT CONNECT UPSTREAM STORM SEWER UNTIL SITE HAS BEEN FULLY STABILIZED. THE SITE IS FULLY STABILIZED WHEN A UNIFORM COVERAGE OR DENSITY OF 70% ACROSS ALL DISTURBED AREAS HAS BEEN ACHIEVED.

GEOTEXTILE SPECIFICATION

GEOTEXTILE SHALL BE NON-WOVEN, RATED FOR SEPARATION AND DRAINAGE IN ACCORDANCE WITH PENNDOT PUBLICATION 408 SPECIFICATION FOR CLASS "4", TYPE "A" GEOTEXTILE - US FABRICS US 270NW OR APPROVED EQUAL.

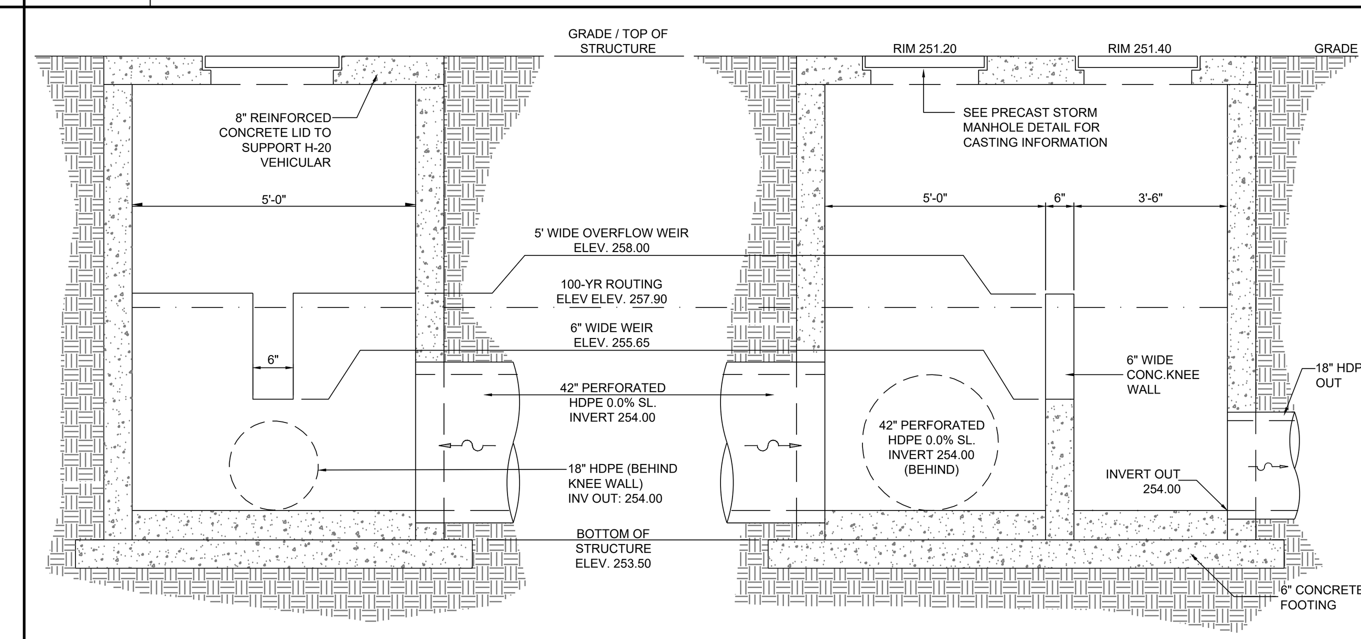
BACKFILL NOTE:

- IN AREAS OF FILL, CONTRACTOR SHALL COORDINATE WITH ON-SITE GEOTECHNICAL ENGINEER TO ENSURE THE SOIL MODIFICATION LAYER MATERIAL IS ADEQUATE AS STRUCTURAL BACKFILL FOR BASIN INSTALLATION. A COPY OF BACKFILL SPECIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.
- PRIOR TO INSTALLING THE SOIL MODIFICATION LAYER, A SAMPLE SOIL MODIFICATION LAYER SHALL BE TESTED BY THE ON-SITE GEOTECHNICAL ENGINEER TO ENSURE THE DESIGN INFILTRATION RATES ARE ACHIEVED. A COPY OF THE RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

INFILTRATION TESTING DURING CONSTRUCTION:
AT THE TIME OF CONSTRUCTION, CONFIRMATION INFILTRATION TESTS SHALL BE PERFORMED AFTER PLACEMENT OF THE SOIL MODIFICATION LAYER AT A RATE OF 3 TEST PER BMP ACRE. THE FIELD TESTING SHALL BE WITNESSED BY THE TOWNSHIP ENGINEER.

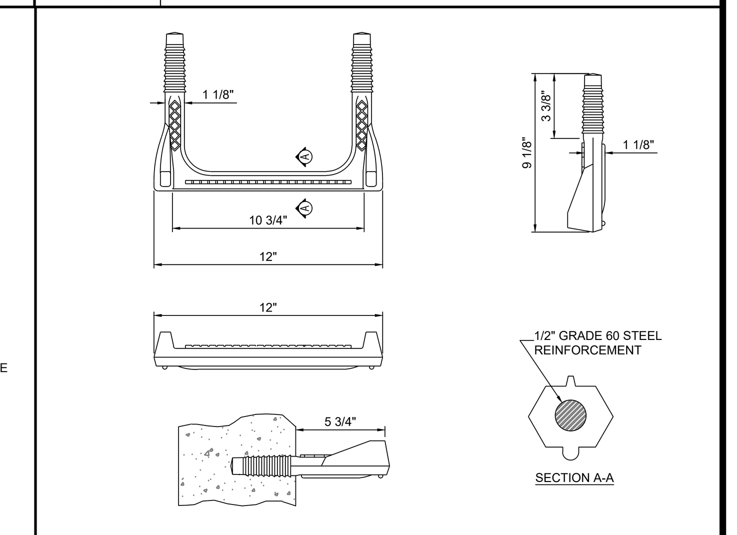
08 UNDERGROUND INFILTRATION BASIN

NOT TO SCALE



06 SUBSURFACE INFILTRATION BASIN P-2 OUTLET STRUCTURE NO. D707

NOT TO SCALE



NOTES:
1. PLACE LADDER BARS AT 12" O.C. MAX.
2. MAX. DISTANCE FROM BOTTOM OF STRUCTURE TO LOWEST LADDER BAR IS 12".
3. SPECIFICATIONS: MANHOLE STEPS SHALL BE ANODIZED ALUMINUM OR APPROVED MATERIAL.

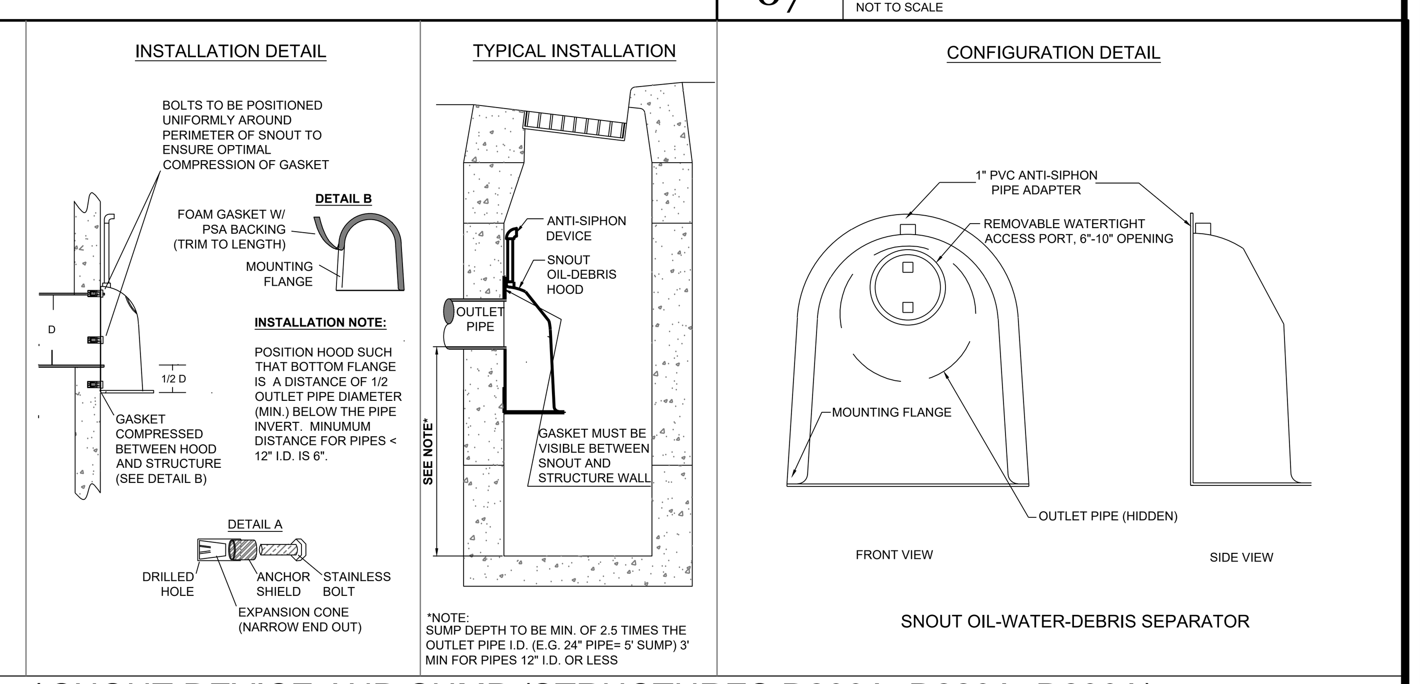
07 LADDER RUNGS

NOT TO SCALE

INSPECTION REQUIREMENTS:

1. **MANUFACTURER:** ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE PROVIDED BY:
   BEST MANAGEMENT PRODUCTS, INC.
   53 MT. ARCHER RD.
   LYME, CT 06371
   TOLL FREE: (800) 504-8008 OR (877) 434-3197 WEB SITE: www.bmpinc.com
2. **CONFIGURATION:** ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, AND AN ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAIL)
3. **PIPE COVERAGE:** THE SIZE OF THE HOOD SHALL PERMIT THE O.D. OF THE OUTLET PIPE TO BE COVERED COMPLETELY.
4. **HOOD POSITION:** THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A MINIMUM DISTANCE EQUAL TO 1/2 THE OUTLET PIPE I.D. WITH A MINIMUM DISTANCE OF 6" FOR PIPES <12" I.D. GREATER INSERTION DEPTH IS PERMISSIBLE.
5. **ANTI-SIPHON VENT:** VENT WITH ELBOW AND FEMALE ADAPTER SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING TO STRUCTURE CONFIGURATION.
6. **MOUNTING SURFACE PREPARATION:** THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL.
7. **SNOUT/SRUCTURE INTERFACE:** THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 3/8' STAINLESS STEEL BOLTS. OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER **MUST BE INSTALLED** TO PROVIDE PROPER SEAL. (SEE DETAIL "B")
8. **ACCESSORIES:** IF OIL BOOMS OR FLOW DEFLECTORS ARE SPECIFIED, THEY MUST BE INSTALLED AND PRESENT FOR INSPECTION.
9. **INSTALLATION INSTRUCTIONS:** INSTRUCTIONS SHALL BE FURNISHED UPON REQUEST OF INSPECTOR WITH MANUFACTURER SUPPLIED INSTALLATION KIT.
   INSTALLATION KIT SHALL INCLUDE:
   A. INSTALLATION INSTRUCTIONS
   B. PVC ANTI-SIPHON VENT PIPE, FEMALE ADAPTER WITH NUT, O-RING GASKETS
   C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
   D. 3/8" STAINLESS STEEL BOLTS
   E. ANCHOR SHIELDS
   (SEE BELOW FOR MULTI-PART SNOUTS 36F, 48F, 54R, 96F AND SPLIT SNOUTS ONLY)
   F. STAINLESS NUTS AND BOLTS PLUS GASKET TO SECURE TOP AND BOTTOM OF SNOUT.

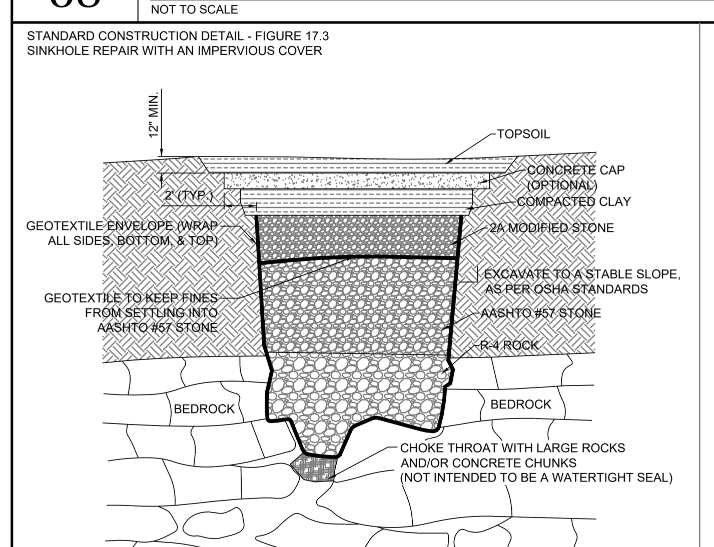
US Patent # 6126817 CANADIAN Patent # 2285146



09 WATER QUALITY STRUCTURE w/ SNOUT DEVICE AND SUMP (STRUCTURES D200A, D220A, D230A)

NOT TO SCALE

STANDARD CONSTRUCTION DETAIL - FIGURE 17.3
SINKHOLE REPAIR WITH AN IMPERVIOUS COVER

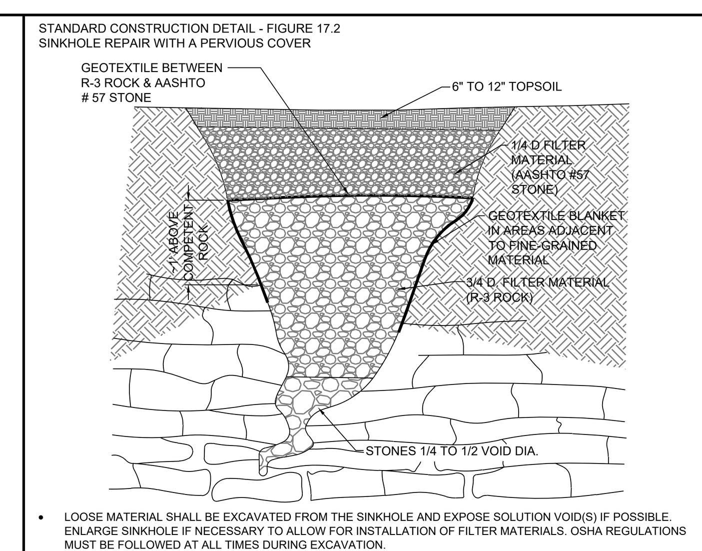


- LOOSE MATERIAL SHALL BE EXCAVATED FROM THE SINKHOLE AND EXPOSE SOLUTION VOID(S) IF POSSIBLE. ENLARGE SINKHOLE IF NECESSARY TO ALLOW FOR INSTALLATION OF FILTER MATERIALS. OSHA REGULATIONS MUST BE FOLLOWED AT ALL TIMES DURING EXCAVATION.
- GEOTEXTILE SHALL BE NON-WOVEN WITH A BURST STRENGTH BETWEEN 100 AND 200 PSI.
- SELECT FIELD STONE(S) ABOUT 1.5 TIMES LARGER THAN SOLUTION VOID(S) TO FORM "BRIDGE." PLACE ROCK(S) SO NO LARGE OPENINGS EXIST ALONG THE SIDES. STONES USED FOR THE "BRIDGE" AND FILTERS SHALL HAVE A MODERATELY HARD ROCK STRENGTH AND BE RESISTANT TO ABRASION AND DEGRADATION. SHALE AND SIMILAR SOFT AND/OR NON-DURABLE ROCK ARE NOT ACCEPTABLE.
- MINIMUM THICKNESS OF R-4 ROCK IS 18." AASHTO #57 STONE THICKNESS SHALL BE ¼ TO ½ THAT OF THE R-4 ROCK. MINIMUM THICKNESS OF 2A MODIFIED CRUSHED STONE SHALL BE 9". AASHTO #57 STONE AND 2A MODIFIED CRUSHED STONE SHALL BE COMPACTED AFTER EACH PLACEMENT.
- COMPACTED CLAY SEAL SHALL BE A MINIMUM OF 12" THICK. CLAY SHALL BE PLACED IN 6" TO 9" LIFTS AND THOROUGHLY COMPACTED.
- CONCRETE CAP, WHICH IS OPTIONAL, SHALL BE A MINIMUM OF 8" THICK. USE 4,000 PSI CONCRETE WITH 6" X 6" - 6 GAUGE WELDED WIRE FABRIC, OR # 3 REBAR ON 18" O.C. BOTH WAYS.
- TOPSOIL SHALL BE A MINIMUM OF 12" THICK. GRADE FOR POSITIVE DRAINAGE AWAY FROM SINKHOLE AREA.
- DUE TO VARIABLE NATURE OF SINKHOLES, THEY SHOULD BE REPAIRED UNDER THE DIRECT OBSERVATION AND SUPERVISION OF A PROFESSIONAL GEOLOGIST OR LICENSED GEOTECHNICAL ENGINEER.

10 SINKHOLE REPAIR

NOT TO SCALE

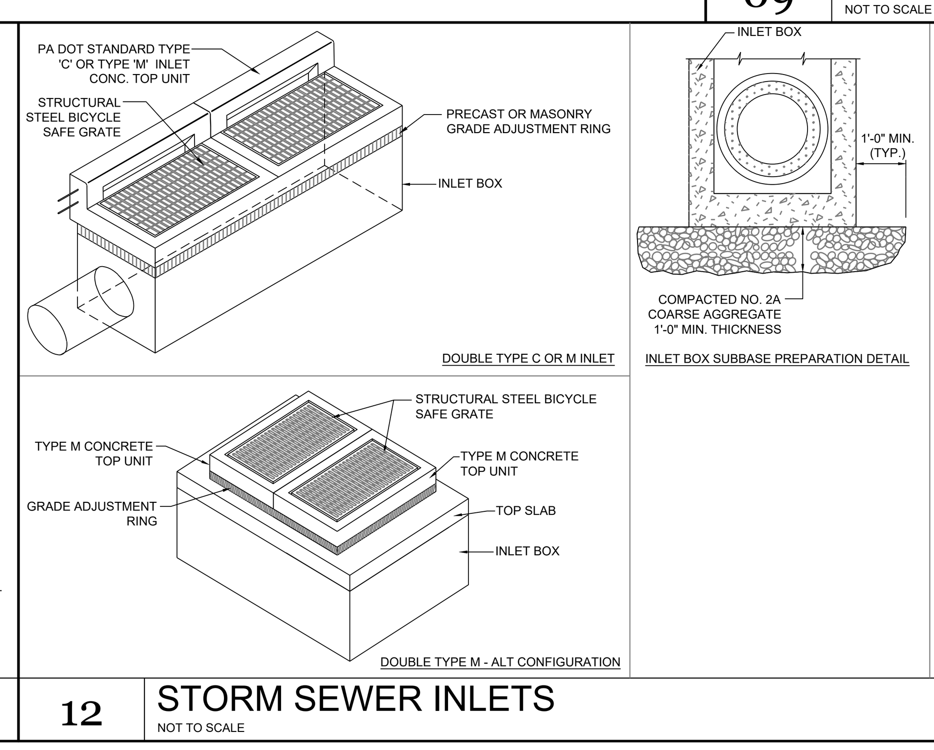
STANDARD CONSTRUCTION DETAIL - FIGURE 17.2
SINKHOLE REPAIR WITH A PERVIOUS COVER



- LOOSE MATERIAL SHALL BE EXCAVATED FROM THE SINKHOLE AND EXPOSE SOLUTION VOID(S) IF POSSIBLE. ENLARGE SINKHOLE IF NECESSARY TO ALLOW FOR INSTALLATION OF FILTER MATERIALS. OSHA REGULATIONS MUST BE FOLLOWED AT ALL TIMES DURING EXCAVATION.
- STONES USED FOR THE "BRIDGE" AND FILTERS SHALL HAVE A MODERATELY HARD ROCK STRENGTH AND BE RESISTANT TO ABRASION AND DEGRADATION. SHALE AND SIMILAR SOFT AND/OR NON-DURABLE ROCK ARE NOT ACCEPTABLE.
- DUE TO VARIABLE NATURE OF SINKHOLES, THEY SHOULD BE REPAIRED UNDER THE DIRECT OBSERVATION AND SUPERVISION OF A PROFESSIONAL GEOLOGIST OR LICENSED GEOTECHNICAL ENGINEER,

11 SINKHOLE REPAIR

NOT TO SCALE



NOTES:

1. THIS DETAIL DEPICTS THE VARIOUS COMPONENTS REQUIRED FOR COMPLETE INLET ASSEMBLIES. FOR INDIVIDUAL COMPONENTS AND OTHER SPECIAL DETAILS, SEE THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION ROADWAY CONSTRUCTION DETAILS (RC-34).
2. EACH TYPE OF INLET SHOWN IS SUITED FOR A PARTICULAR SITUATION AS FOLLOWS:
   - 2.1. TYPE C INLET IS DESIGNATED FOR INSTALLATION WITH NON-MOUNTABLE CURBS.
   - 2.2. TYPE M INLET IS DESIGNATED FOR INSTALLATION IN MEDIAN AREAS AND MOUNTABLE CURBS.
3. THE SELECTION OF COMPONENTS TO ACHIEVE A SPECIFIED INLET ASSEMBLY IS THE CONTRACTORS RESPONSIBILITY.
4. CONSTRUCT IN ACCORDANCE WITH THE REQUIREMENTS OF THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 408, SECTION 605, FOR INLET ASSEMBLIES.
5. USE PRECAST CONCRETE OR MASONRY GRADE ADJUSTMENT RINGS.
6. INLETS SHALL HAVE FORMED CONCRETE FLOW CHANNELS.
7. INLET GRATES SHALL BE INSTALLED IN INLET TOPS TO FIT FINISHED GRADE.
8. INLET GRATES SHALL BE STRUCTURAL STEEL BICYCLE SAFE GRATES.
9. INLETS 5 FEET AND DEEPER REQUIRE STEPS.
10. THIS DETAIL DEPICTS THE SHAPE AND DIMENSIONS REQUIRED FOR UNIFORMITY AND COMPATIBILITY. IT DOES NOT INCLUDE DETAILS REQUIRED FOR MANUFACTURING AND HANDLING PRECAST TOP UNITS. ONLY TOP UNITS SUPPLIED BY A MANUFACTURER LISTED IN BULLETIN 15 SHALL BE PERMITTED. FOR A BULLETIN 15 LISTING, SUBMIT A 22x36 REPRODUCIBLE SHOP DRAWING TO THE BUREAU OF CONSTRUCTION AND MATERIALS, MATERIALS AND TESTING DIVISION, FOR REVIEW AND APPROVAL.
11. CAST-IN-PLACE TOP UNITS MAY BE MONOLITHIC WITH THE INLET BOX.
12. PROVIDE ANGLES EMBEDDED IN THE CONCRETE AS A BEARING AREA FOR THE GRATE FOR ALL TOP UNITS WHICH SEAT THE GRATE DIRECTLY WITHIN THE UNIT.
13. PLACE A TYPE M INLET ADJACENT TO THE BACK EDGE OF THE CURB, FLUSH WITH THE PAVEMENT SURFACE, WHEN REQUIRED WITHIN A MOUNTABLE CURB SECTION.
14. DOWEL TYPE C INLET TOP UNITS WITH (2) No 8 x 1'-0" DOWEL BARS AND PLACE ¼" PREMOLDED EXPANSION JOINT FILLER WHEN CONNECTING TO ADJACENT CURB SECTIONS.

12 STORM SEWER INLETS

NOT TO SCALE

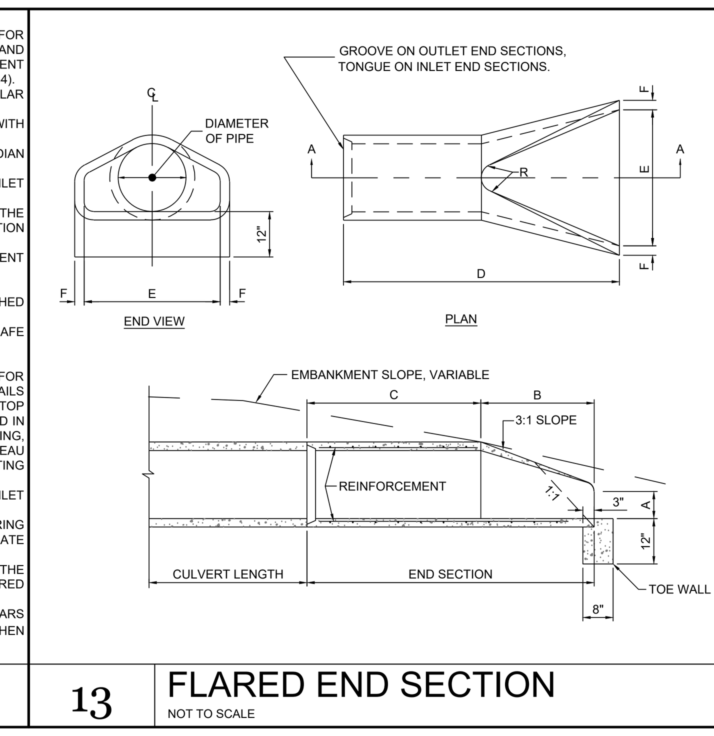


TABLE A - DIMENSIONS FOR END SECTION FOR CONCRETE PIPE							
DIAM.	A	B	C	D	E	F	R
18"	9"	2'-3"	3'-10"	6'-1"	3'-0"	2 1/2"	7 1/2"
21"	9"	3'-0"	3'-1"	6'-1"	3'-6"	2 3/4"	8"
24"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3"	8"
27"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	4'-6"	3 1/4"	9"
30"	12"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3 1/2"	8"
33"	13 1/2"	4'-10 1/2"	3'-1 1/2"	8'-0"	5'-6"	3 3/4"	9"
36"	15"	5'-3"	2'-9"	8'-0"	6'-0"	4"	10"
42"	21"	5'-3"	2'-9"	8'-0"	6'-6"	4 1/2"	11"
48"	24"	6'-0"	2'-0"	8'-0"	7'-0"	5"	12"

NOTE:
FOR PROPOSED 15" DIA. PIPE OR SMALLER,
USE DIMENSIONS SPECIFIED FOR 18" DIA. PIPE

13 FLARED END SECTION

NOT TO SCALE

RYAN T. WHITMORE
PROFESSIONAL ENGINEER

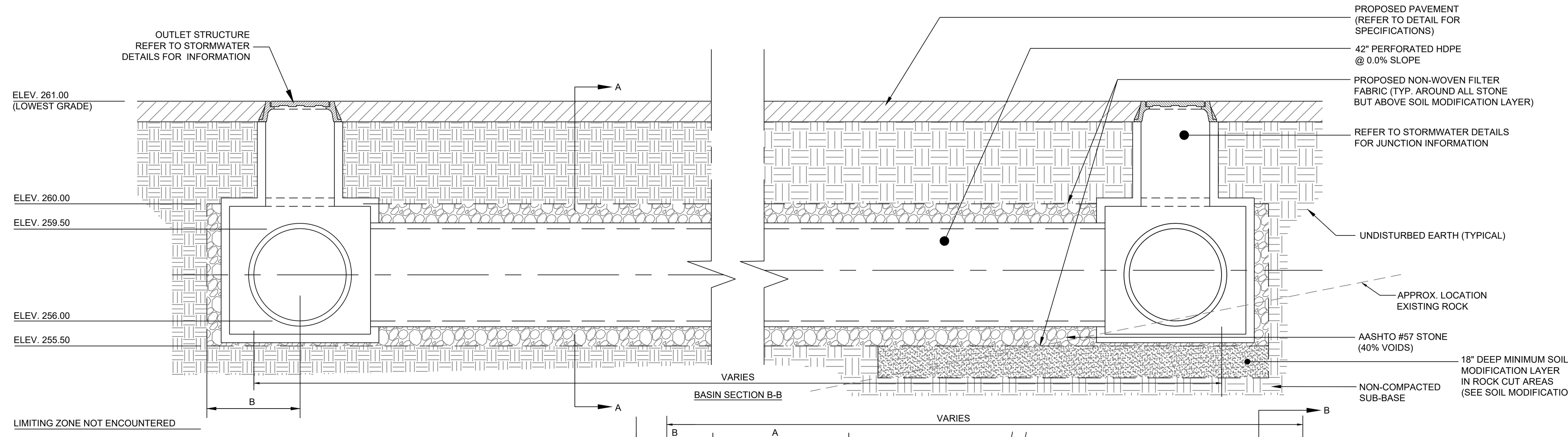
NOT FOR CONSTRUCTION

LANDCORE Engineering Consultants, P.C.

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

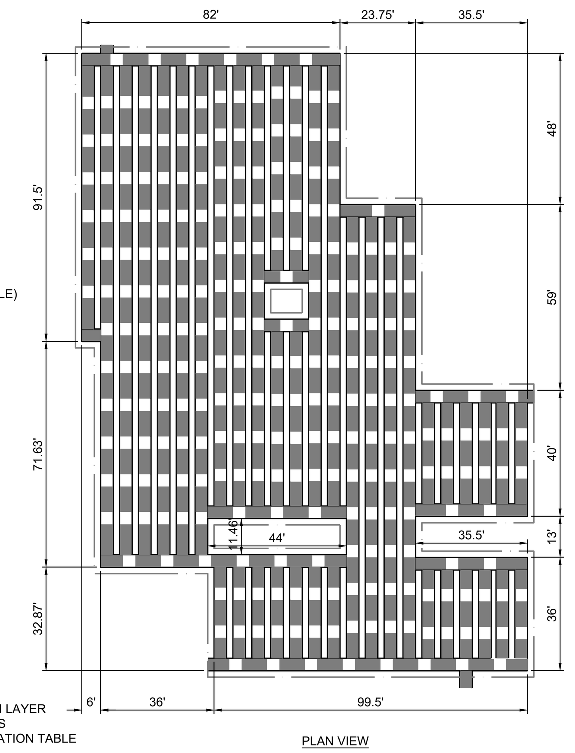
TITLE: POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS

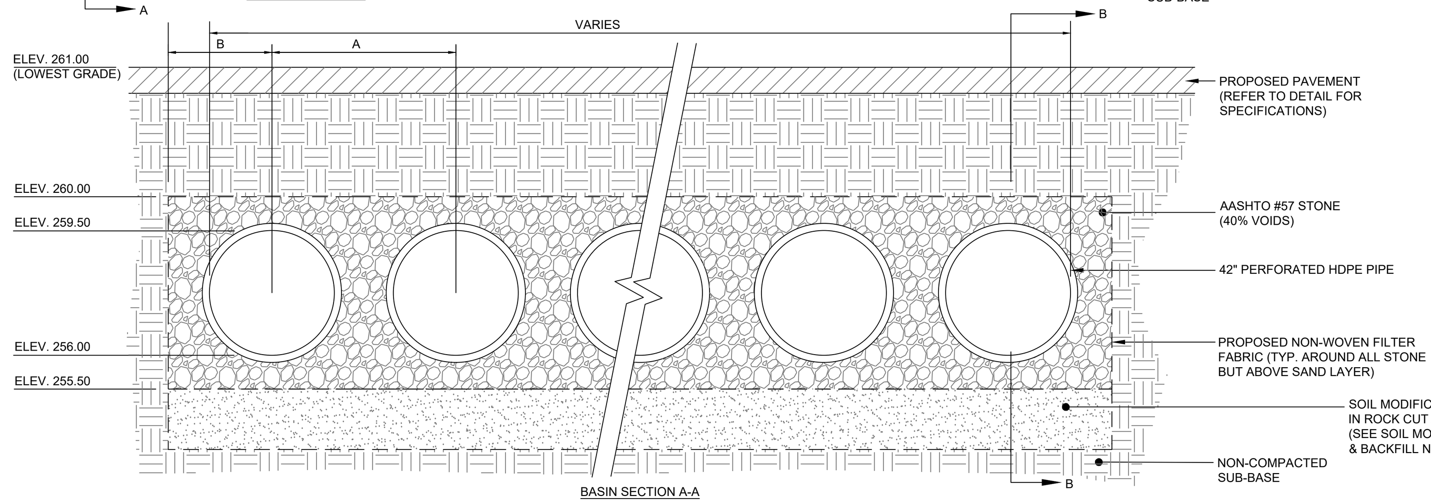
SCALE: AS NOTED
DATE: 2017 - 12 - 22
SHEET: 41
DS1
REV. No: 0



SOIL MODIFICATION TABLE FOR K3 PERMEABILITY SOIL CLASS								
PERMISSIBLE SOIL TYPES, BASED ON USDA CLASSIFICATION	RANGES OF USDA PARTICLE SIZE PERCENTAGE						TYPICAL INFILTRATION RATES FOR K3 PERMISSIBLE SOIL TYPES (IN/HR)	
	SAND		SILT		CLAY		MIN	MAX
	MIN	MAX	MIN	MAX	MIN	MAX		
SANDY, LOAM SAND	45	70	0	50	20	30	2.0	6.0

SIZE	A	B
42"	6.00'	3.75'





CONSTRUCTION GUIDELINES AND NOTES

- AREAS FOR PROPOSED INFILTRATION SYSTEMS SHALL BE CLEARLY MARKED WITH SILT FENCING BEFORE ANY SITE WORK BEGINS TO AVOID SOIL DISTURBANCE AND COMPACTION DURING CONSTRUCTION. IF AREAS ARE COMPACTED DURING CONSTRUCTION ADDITIONAL INFILTRATION TESTING WILL BE REQUIRED.
- STOCKPILES SHOULD NOT BE PLACED OVER THE INFILTRATION BASIN AREAS.
- UPON SITE STABILIZATION (SEE CONSTRUCTION SEQUENCE), EXCAVATE INFILTRATION AREA TO PROPOSED DEPTHS. NOTE: HEAVY DUTY EQUIPMENT IS NOT ALLOWED WITHIN THE LIMITS OF THE INFILTRATION BED TO AVOID COMPACTION.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE COMMENCEMENT OF THE INFILTRATION BASIN EXCAVATION FOR INSPECTION.
- EXCAVATION OF THE INFILTRATION BASIN SHOULD BE COMPLETED FROM THE PERIMETER OF THE PROPOSED BMP WHERE POSSIBLE. WHERE THE EXCAVATION CANNOT BE COMPLETED FROM THE PERIMETER OF THE BMP, BULK EARTHWORK CAN BE COMPLETED TO AN ELEVATION WHICH IS ONE (1) FOOT ABOVE THE INFILTRATION BOTTOM ELEVATION. EXCAVATION FROM THIS POINT ON SHOULD BE COMPLETED WITH A LIGHT DUTY MACHINE (BOBCAT OR APPROVED EQUAL) PLACED ON THE AREAS CONTAINING THE ONE (1) FOOT OF MATERIAL. AS THE EXCAVATION OF THE ONE (1) FOOT OF MATERIAL PROCEEDS, THE INFILTRATION SURFACE SHOULD BE SCARIFIED. AGGREGATE BACKFILL SHOULD NOT BE DUMPED ONTO THE PREPARED INFILTRATION SURFACE BY TRUCK, BUT SHOULD BE SPREAD WITH THE MACHINE PLACING/SPREADING THE STONE ON THE PERIMETER OF THE INFILTRATION SURFACE OR TRACKING OVER A MINIMUM OF ONE (1) FOOT AGGREGATE.
- THE USE OF LOW GROUND PRESSURE (LGP) MACHINES IS ALLOWED AS LONG AS THE SPECIFICATIONS OF THE MACHINE ARE VERIFIED AND APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE PLACEMENT STONE BED AND PIPING FOR INSPECTION AND RECOMMENDATION IF ADDITIONAL INFILTRATION TESTING IS REQUIRED.
- PLACE GEOTEXTILE AND RECHARGE BED AGGREGATE IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION TO PREVENT ACCUMULATION OF DEBRIS OR SEDIMENT. PREVENT RUNOFF AND SEDIMENT FROM ENTERING THE STORAGE BED DURING THE PLACEMENT OF THE GEOTEXTILE AND AGGREGATE BED.
- PLACE GEOTEXTILE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF 18 INCHES. FABRIC SHALL BE SECURED AT LEAST 4 FEET OUTSIDE OF BED.
- INSTALL AGGREGATE COURSE IN LIFTS OF 6-8 INCHES. LIGHTLY COMPACT EACH LAYER WITH EQUIPMENT, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
- COMPLETE SURFACE GRADING ABOVE SUBSURFACE INFILTRATION SYSTEM, USING SUITABLE EQUIPMENT TO AVOID EXCESS COMPACTION.
- THE BOTTOM STONE SUBBASE SHOULD BE SPREAD BY HAND.
- THE BOTTOM OF THE INFILTRATION BED SHALL BE AT A LEVEL GRADE.

SEQUENCE OF CONSTRUCTION

- EXCAVATE UNDERGROUND BASIN AREA TO PROPOSED DEPTHS.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE COMMENCEMENT OF THE UNDERGROUND BASIN EXCAVATION FOR INSPECTION.
- INSTALL SOIL MODIFICATION LAYER IN ALL FILL AREAS.
- PLACE GEOTEXTILE AND BED AGGREGATE. PREVENT RUNOFF AND SEDIMENT FROM ENTERING THE STORAGE BED DURING THE PLACEMENT OF THE GEOTEXTILE AND AGGREGATE BED.
- PLACE GEOTEXTILE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF 18 INCHES. FABRIC SHALL BE SECURED AT LEAST 4 FEET OUTSIDE OF BED.
- INSTALL AGGREGATE AND STORAGE PIPES TO GRADES INDICATED ON THE DRAWINGS.
- BACKFILL UNDERGROUND BASIN WITH APPROPRIATE FILL TO PROPOSED GRADE AS SHOWN ON THE GRADING PLAN.
- DO NOT CONNECT UPSTREAM STORM SEWER UNTIL SITE HAS BEEN FULLY STABILIZED. THE SITE IS FULLY STABILIZED WHEN A UNIFORM COVERAGE OR DENSITY OF 70% ACROSS ALL DISTURBED AREAS HAS BEEN ACHIEVED.

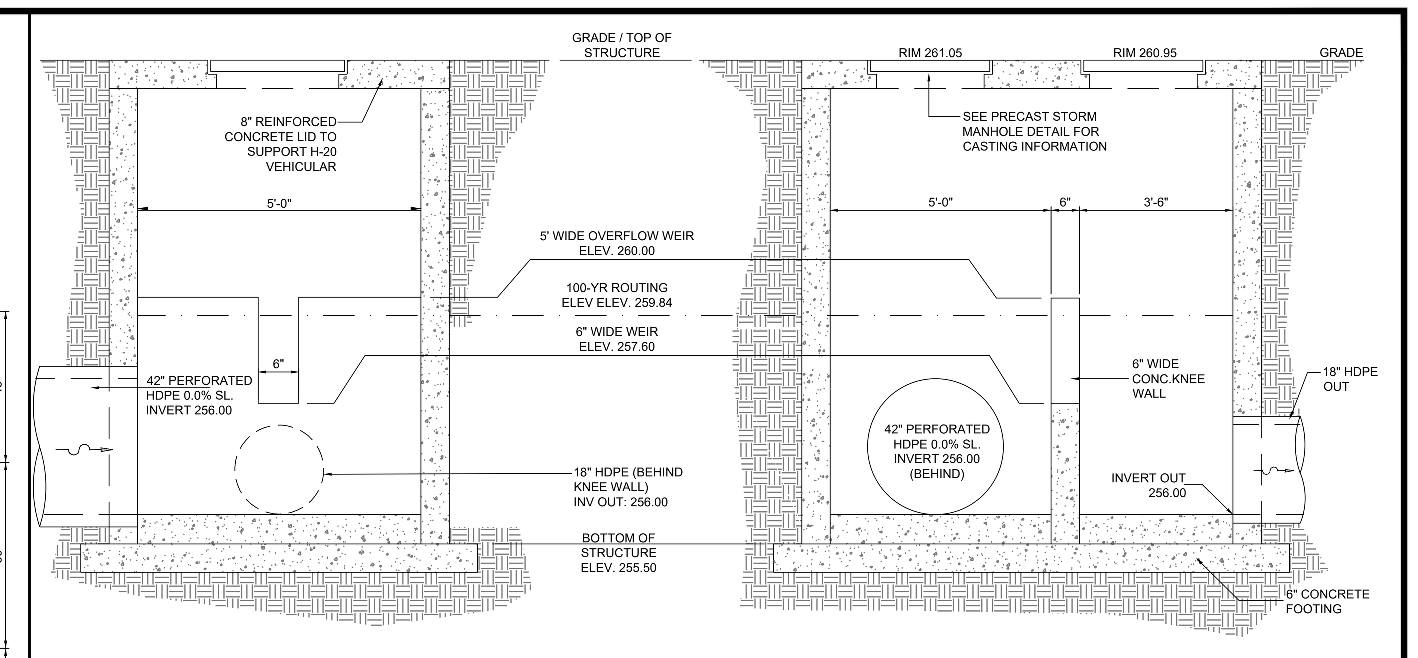
GEOTEXTILE SPECIFICATION

GEOTEXTILE SHALL BE NON-WOVEN, RATED FOR SEPARATION AND DRAINAGE IN ACCORDANCE WITH PENNDOT PUBLICATION 408 SPECIFICATION FOR CLASS "4", TYPE "A" GEOTEXTILE - US FABRICS US 270NW OR APPROVED EQUAL.

INFILTRATION TESTING DURING CONSTRUCTION:
AT THE TIME OF CONSTRUCTION, CONFIRMATION INFILTRATION TESTS SHALL BE PERFORMED AFTER PLACEMENT OF THE SOIL MODIFICATION LAYER AT A RATE OF 3 TEST PER BMP ACRE. THE FIELD TESTING SHALL BE WITNESSED BY THE TOWNSHIP ENGINEER.

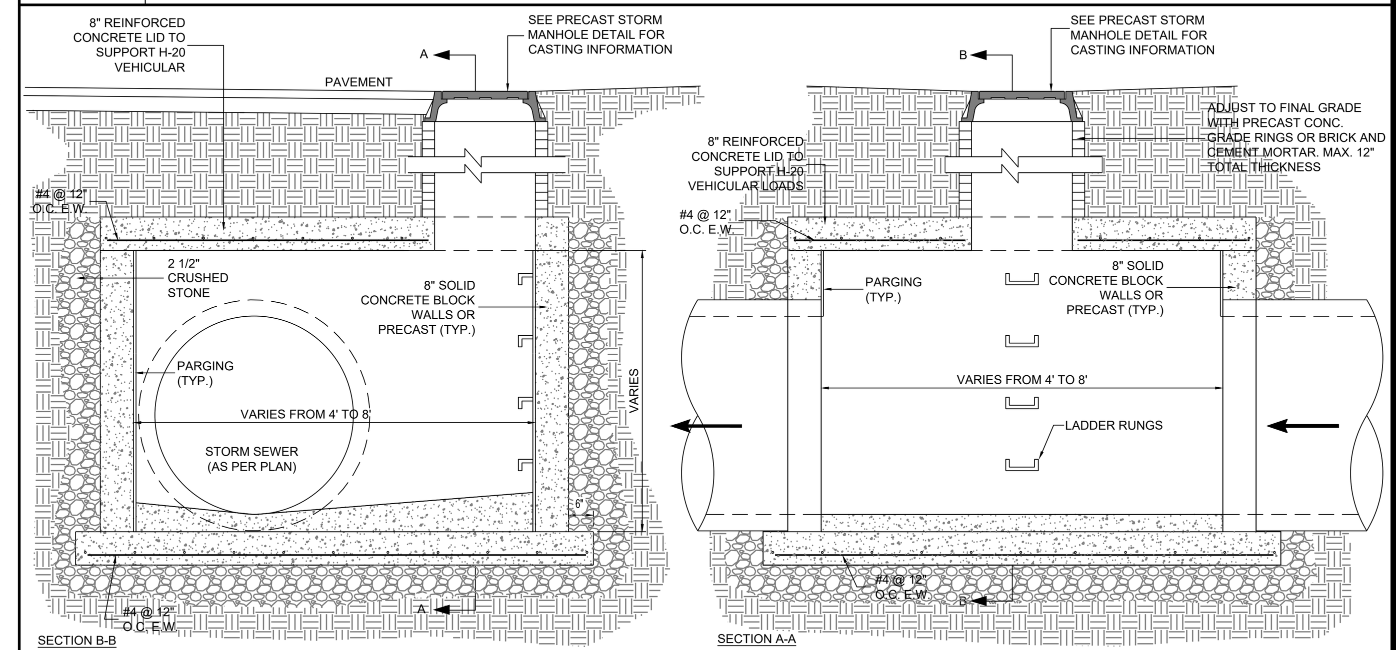
02 SUBSURFACE INFILTRATION BASIN P-3

NOT TO SCALE



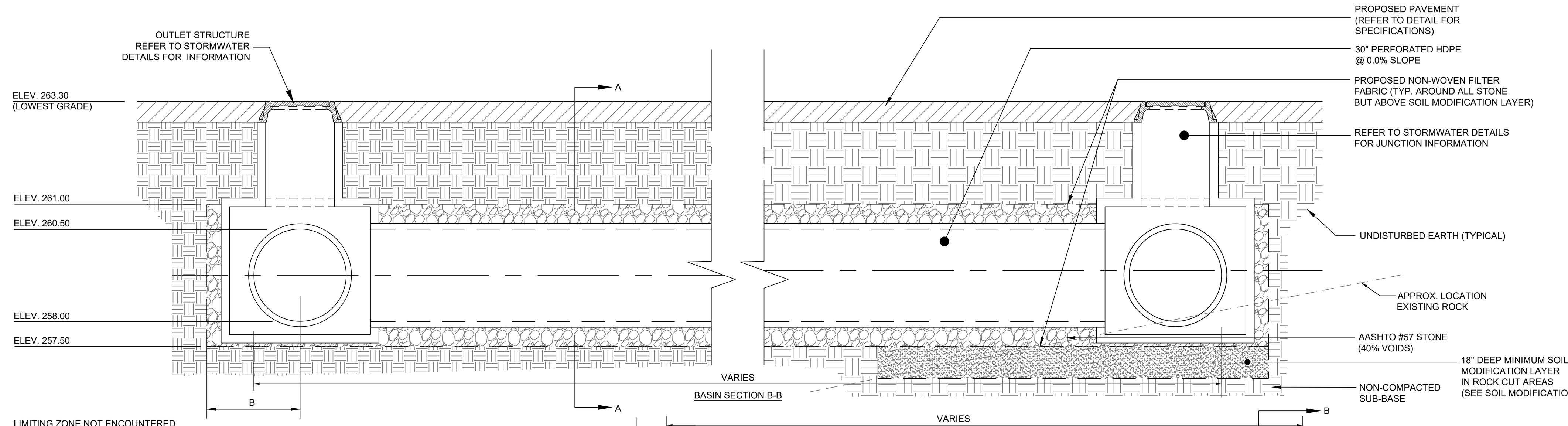
01 SUBSURFACE INFILTRATION BASIN P-3 OUTLET STRUCTURE NO. D714

NOT TO SCALE



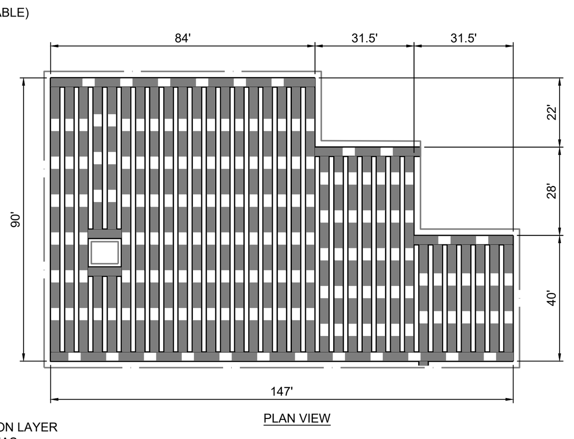
03 RECTANGULAR STORM SEWER STRUCTURE

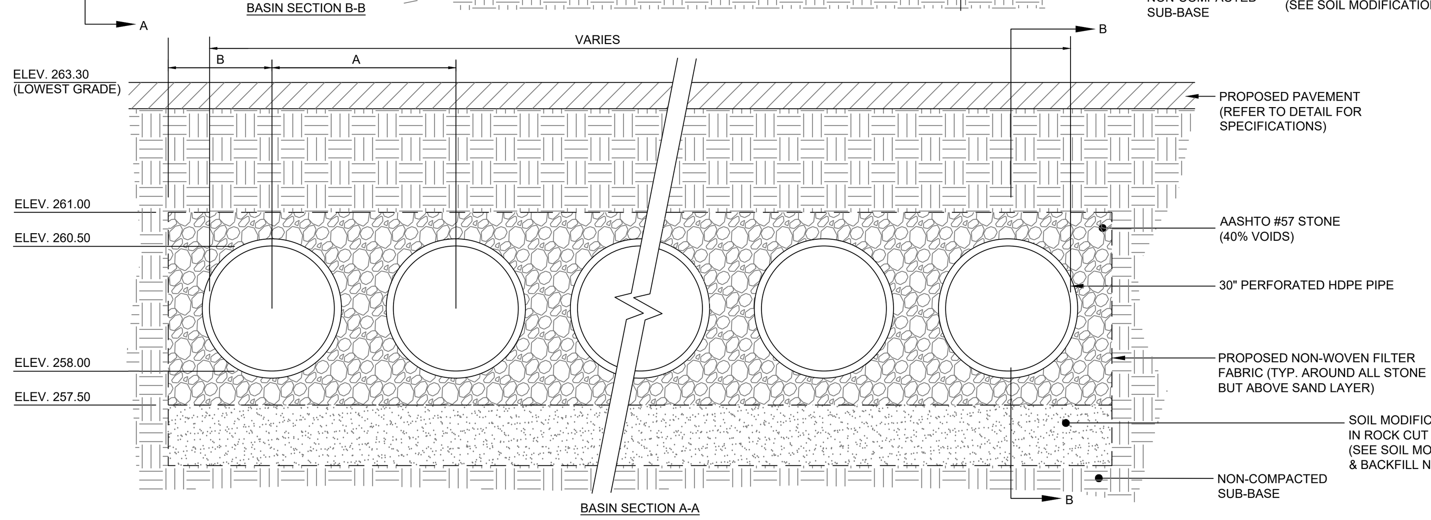
NOT TO SCALE



SOIL MODIFICATION TABLE FOR K3 PERMEABILITY SOIL CLASS								
PERMISSIBLE SOIL TYPES, BASED ON USDA CLASSIFICATION	RANGES OF USDA PARTICLE SIZE PERCENTAGE						TYPICAL INFILTRATION RATES FOR K3 PERMISSIBLE SOIL TYPES (IN/HR)	
	SAND		SILT		CLAY		MIN	MAX
	MIN	MAX	MIN	MAX	MIN	MAX		
SANDY, LOAM SAND	45	70	0	50	20	30	2.0	6.0

SIZE	A	B
30"	4.42'	3.25'





CONSTRUCTION GUIDELINES AND NOTES

- AREAS FOR PROPOSED INFILTRATION SYSTEMS SHALL BE CLEARLY MARKED WITH SILT FENCING BEFORE ANY SITE WORK BEGINS TO AVOID SOIL DISTURBANCE AND COMPACTION DURING CONSTRUCTION. IF AREAS ARE COMPACTED DURING CONSTRUCTION ADDITIONAL INFILTRATION TESTING WILL BE REQUIRED.
- STOCKPILES SHOULD NOT BE PLACED OVER THE INFILTRATION BASIN AREAS.
- UPON SITE STABILIZATION (SEE CONSTRUCTION SEQUENCE), EXCAVATE INFILTRATION AREA TO PROPOSED DEPTHS. NOTE: HEAVY DUTY EQUIPMENT IS NOT ALLOWED WITHIN THE LIMITS OF THE INFILTRATION BED TO AVOID COMPACTION.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE COMMENCEMENT OF THE INFILTRATION BASIN EXCAVATION FOR INSPECTION.
- EXCAVATION OF THE INFILTRATION BASIN SHOULD BE COMPLETED FROM THE PERIMETER OF THE PROPOSED BMP WHERE POSSIBLE. WHERE THE EXCAVATION CANNOT BE COMPLETED FROM THE PERIMETER OF THE BMP, BULK EARTHWORK CAN BE COMPLETED TO AN ELEVATION WHICH IS ONE (1) FOOT ABOVE THE INFILTRATION BOTTOM ELEVATION. EXCAVATION FROM THIS POINT ON SHOULD BE COMPLETED WITH A LIGHT DUTY MACHINE (BOBCAT OR APPROVED EQUAL) PLACED ON THE AREAS CONTAINING THE ONE (1) FOOT OF MATERIAL. AS THE EXCAVATION OF THE ONE (1) FOOT OF MATERIAL PROCEEDS, THE INFILTRATION SURFACE SHOULD BE SCARIFIED. AGGREGATE BACKFILL SHOULD NOT BE DUMPED ONTO THE PREPARED INFILTRATION SURFACE BY TRUCK, BUT SHOULD BE SPREAD WITH THE MACHINE PLACING/SPREADING THE STONE ON THE PERIMETER OF THE INFILTRATION SURFACE OR TRACKING OVER A MINIMUM OF ONE (1) FOOT AGGREGATE.
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- PLACE GEOTEXTILE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF 18 INCHES. FABRIC SHALL BE SECURED AT LEAST 4 FEET OUTSIDE OF BED.
- INSTALL AGGREGATE COURSE IN LIFTS OF 6-8 INCHES. LIGHTLY COMPACT EACH LAYER WITH EQUIPMENT, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
- COMPLETE SURFACE GRADING ABOVE SUBSURFACE INFILTRATION SYSTEM, USING SUITABLE EQUIPMENT TO AVOID EXCESS COMPACTION.
- THE BOTTOM STONE SUBBASE SHOULD BE SPREAD BY HAND.
- THE BOTTOM OF THE INFILTRATION BED SHALL BE AT A LEVEL GRADE.

SEQUENCE OF CONSTRUCTION

- EXCAVATE UNDERGROUND BASIN AREA TO PROPOSED DEPTHS.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE COMMENCEMENT OF THE UNDERGROUND BASIN EXCAVATION FOR INSPECTION.
- INSTALL SOIL MODIFICATION LAYER IN ALL FILL AREAS.
- PLACE GEOTEXTILE AND BED AGGREGATE. PREVENT RUNOFF AND SEDIMENT FROM ENTERING THE STORAGE BED DURING THE PLACEMENT OF THE GEOTEXTILE AND AGGREGATE BED.
- PLACE GEOTEXTILE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF 18 INCHES. FABRIC SHALL BE SECURED AT LEAST 4 FEET OUTSIDE OF BED.
- INSTALL AGGREGATE AND STORAGE PIPES TO GRADES INDICATED ON THE DRAWINGS.
- BACKFILL UNDERGROUND BASIN WITH APPROPRIATE FILL TO PROPOSED GRADE AS SHOWN ON THE GRADING PLAN.
- DO NOT CONNECT UPSTREAM STORM SEWER UNTIL SITE HAS BEEN FULLY STABILIZED. THE SITE IS FULLY STABILIZED WHEN A UNIFORM COVERAGE OR DENSITY OF 70% ACROSS ALL DISTURBED AREAS HAS BEEN ACHIEVED.

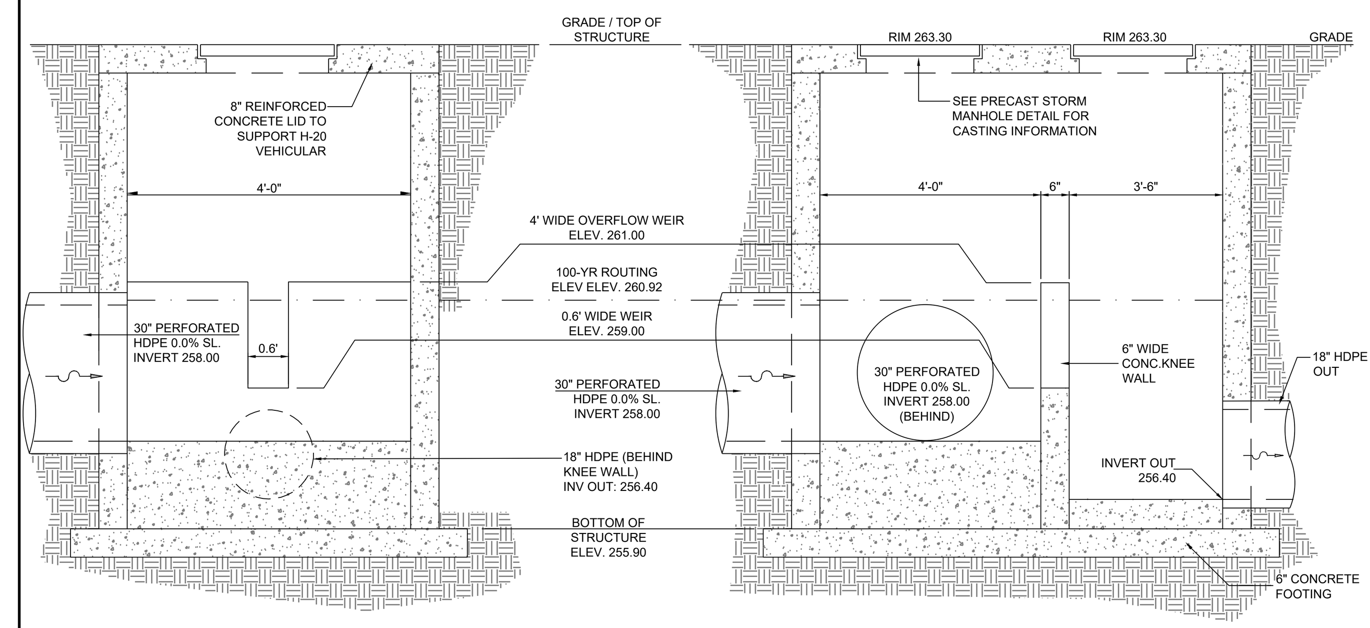
GEOTEXTILE SPECIFICATION

GEOTEXTILE SHALL BE NON-WOVEN, RATED FOR SEPARATION AND DRAINAGE IN ACCORDANCE WITH PENNDOT PUBLICATION 408 SPECIFICATION FOR CLASS "4", TYPE "A" GEOTEXTILE - US FABRICS US 270NW OR APPROVED EQUAL.

INFILTRATION TESTING DURING CONSTRUCTION:
AT THE TIME OF CONSTRUCTION, CONFIRMATION INFILTRATION TESTS SHALL BE PERFORMED AFTER PLACEMENT OF THE SOIL MODIFICATION LAYER AT A RATE OF 3 TEST PER BMP ACRE. THE FIELD TESTING SHALL BE WITNESSED BY THE TOWNSHIP ENGINEER.

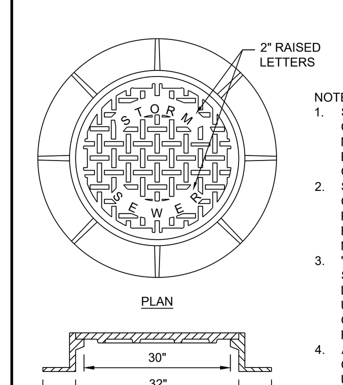
05 SUBSURFACE INFILTRATION BASIN P-4

NOT TO SCALE



04 SUBSURFACE INFILTRATION BASIN P-4 OUTLET STRUCTURE NO. D717

NOT TO SCALE



NOTES:
1. STANDARD MANHOLE FRAMES & COVERS SHALL BE USED ON ALL MANHOLES NOT LOCATED WITHIN EASEMENTS UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
2. STANDARD MANHOLE FRAME & COVER SHALL BE BRIDGESTATE PATTERN #1012B, OR APPROVED EQUIVALENT, WITH NON-PENETRATING PICK HOLES.
3. "FLOW-SEAL" MANHOLE COVERS SHALL BE USED ON MANHOLES LOCATED WITHIN EASEMENTS, IN UNPAVED AREAS, AND OUTSIDE OF THE CENTERLINE OF PAVED ROADS.
4. ALL MANHOLE FRAME AND COVERS SHALL BE MADE IN THE USA.
5. ALL JOINTS, INCLUDING FRAME TO MANHOLE JOINTS, SHALL USE EXTERNAL JOINT SEALING WRAP.

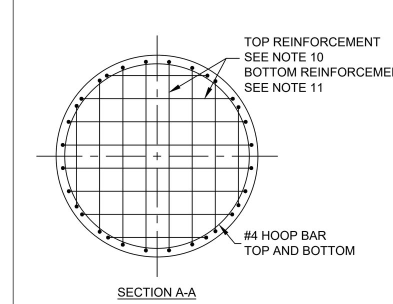
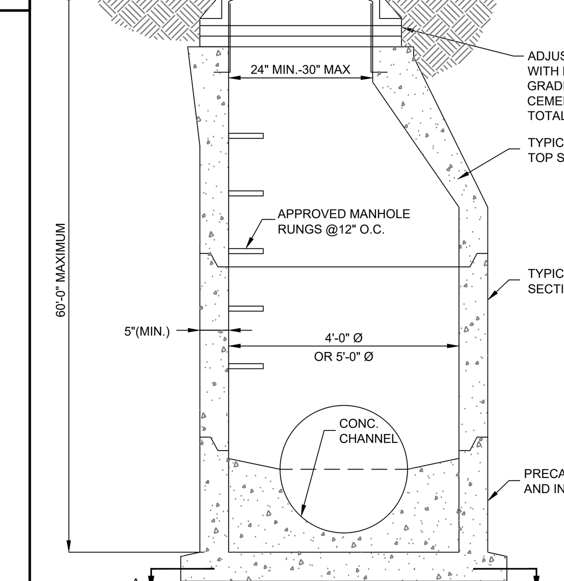
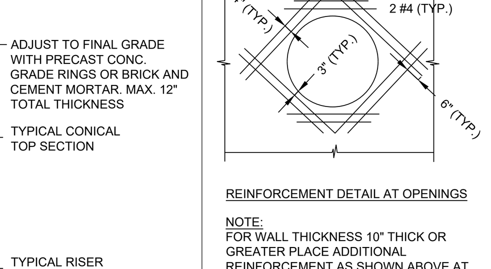


TABLE A
BASE SLAB DIMENSIONS

MAX. DEPTH FROM TOP OF MANHOLE TO TOP OF FOOTING	AS DESIGNED (SEE NOTE 12)	
	FOOTING DIAMETER	FOOTING THICKNESS
10'-0"	6'-9"	1'-0"
20'-0"	6'-9"	1'-0"
30'-0"	6'-9"	1'-3"
40'-0"	7'-3"	1'-3"
50'-0"	8'-0"	1'-3"
60'-0"	8'-6"	1'-3"

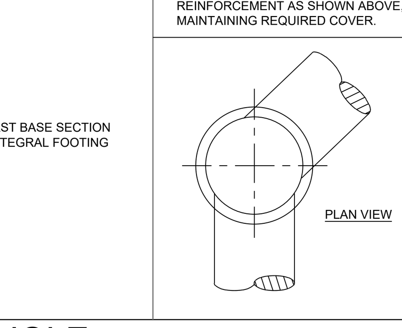


NOTES:
1. FOR PIPES 30 INCHES INSIDE DIAMETER OR LESS.
2. FOR BASE SLAB DIMENSIONS SEE TABLE "A".



REINFORCEMENT DETAIL AT OPENINGS

NOTE:
FOR WALL THICKNESS 10" THICK OR GREATER PLACE ADDITIONAL REINFORCEMENT AS SHOWN ABOVE AT EACH FACE OF THE WALL INSIDE MAIN REINFORCEMENT. FOR WALLS 5" THICK KEEP MAIN REINFORCEMENT CENTERED IN WALL, PROVIDE ADDITIONAL REINFORCEMENT AS SHOWN ABOVE, MAINTAINING REQUIRED COVER.



PLAN VIEW

NOTES:
1. PRECAST MANHOLES, MEETING THE REQUIREMENTS OF PUBLICATION 408 SPECIFICATIONS, SECTION 714, MAY BE SUBSTITUTED FOR THE STANDARD CAST-IN-PLACE MANHOLE.
2. CONSTRUCTION NOTES:
   - 2.1. CONSTRUCT IN ACCORDANCE WITH PENNDOT PUBLICATION 408 SPECIFICATIONS, SECTIONS 605, 606, 714 AND ASTM C-478-90, STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, AS MODIFIED HERE IN.
   - 2.2. MINIMUM CONCRETE CLASS AA.
   - 2.3. PROVIDE EPOXY COATED STEEL REINFORCEMENT IN ACCORDANCE WITH ASTM A185, STEEL WELDED WIRE FABRIC ASTM A663 & A675, PLAIN BILLET STEEL BARS OR ASTM A615, DEFORMED BILLET STEEL BARS PROVIDE MINIMUM YIELD STRENGTH OF 60,000 PSI.
   - 2.4. CLEAR COVER FOR STEEL:
     - 2.4.1. WALLS: 2"
     - 2.4.2. FOOTINGS: 2" (TOP BARS), 1 1/2" (BOTTOM BARS)
     - 2.4.3. 1 1/2" (SIDE COVER)
3. PROVIDE 12" MINIMUM HORIZONTAL CLEARANCE BETWEEN OPENINGS LOCATED AT THE SAME DEPTH. PIPES NOT LOCATED AT THE SAME DEPTH MUST BE LOCATED VERTICALLY AT LEAST ONE TIMES MAXIMUM OPENING DIAMETER APART.
4. FOR RISERS OR BASE SECTIONS WITH OPENINGS, PROVIDE A MINIMUM HEIGHT OF SECTION EQUAL TO TWO TIMES THE LARGEST OPENING. CENTER OF OPENING TO BE LOCATED AT LEAST ONE TIMES THE OPENING FROM THE CLOSEST JOINT BETWEEN RISERS.
5. PRECAST RISERS AND BASE SECTIONS
   - 5.1. FOR PRECAST RISER OR BASE SECTIONS WITH ONE OPENING LOCATED AT DEPTHS TO 60' OR FOR SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT A DEPTH OF 15 FEET AND LESS, PROVIDE CIRCUMFERENTIAL REINFORCEMENT IN ACCORDANCE WITH REINFORCEMENT DETAIL AT OPENINGS.
   - 5.2. FOR RISERS OR BASE SECTIONS WITH 2 OR MORE OPENINGS, LOCATED AT A DEPTH GREATER THAN 15 FEET, BUT LESS THAN OR EQUAL TO 30 FEET, PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.44 SQ/IN VERTICAL FOOT FOR THE DEPTH OF THE RISER OR BASE SECTION.
   - 5.3. FOR RISERS OR BASE SECTIONS WITH 2 OR MORE OPENINGS, LOCATED AT DEPTHS GREATER THAN 30 FEET, USE A 10 INCH THICK WALL RISER OR BASE SECTION WITH CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ/IN VERTICAL FOOT EACH FACE.
   - 5.4. RISERS OR BASE SECTIONS WITH HOLES TO BE CLEARLY MARKED WITH MAXIMUM ALLOWABLE DEPTH.
6. PROVIDE ADDITIONAL REINFORCEMENT BARS AROUND OPENINGS AS SHOWN ON REINFORCEMENT DETAILS AT OPENINGS.
7. PROVIDE MANHOLE STEPS MEETING THE REQUIREMENTS OF PUBLICATION 408 SPECIFICATIONS, SECTION 605.2(C). ALTERNATE CONFIGURATIONS AND DIMENSIONS, AS APPROVED BY THE ENGINEER, MAY BE USED.
8. PROVIDE MINIMUM 1" SECTION DIMENSION FOR METAL STEPS. PROVIDE MAXIMUM 3/4" SECTION DIMENSION FOR NON-DETERIORATING MATERIAL STEPS.
9. MECHANICAL ANCHOR REQUIRED FOR INSTALLATION OF STEPS WITHOUT HOOKS.
10. FOR FOOTING TOP REINFORCEMENT, BOTH DIRECTIONS, USE NO. 19 (6) BARS AT 12" FOR DEPTHS TO 60' OR 0.30 IN²/FT WWF FOR DEPTHS TO 30' AND 0.32 IN²/FT WWF FOR DEPTHS GREATER THAN 30'. 6" MAXIMUM SPACING FOR WWF.
11. FOR FOOTING BOTTOM REINFORCEMENT, BOTH DIRECTIONS, USE NO. 13 (4) BARS AT 18" FOR DEPTHS TO 60' OR 0.15 IN²/FT WWF FOR DEPTHS TO 30' AND 0.16 IN²/FT WWF FOR DEPTHS GREATER THAN 30'. 6" MAXIMUM SPACING FOR WWF.
12. A SAFE BEARING CAPACITY OF (1.5 TONS PER S.F.) UNDER THE ENTIRE SLAB IS ASSUMED TO DETERMINE THE BASE SIZE. WHEN THE SUBSOIL IS EXTREMELY POOR, PROCEED WITH CONSTRUCTION ONLY AFTER THE ENGINEER SPECIFIES ADEQUATE BASE DESIGN.

06 PRECAST STORM MANHOLE

NOT TO SCALE

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 076556

NOT FOR CONSTRUCTION

PROJECT No:	140012
DRAWN BY:	B. NAGENGAST / M. RIVEZZI
CHECKED BY:	R. WHITMORE
CAD I.D. #:	21-22-23_DS_140012

LANDCORE Engineering Consultants, P.C.
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PITTSBURGH, PA 15235
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PRINCETON, NJ
100 OVERLOOK CENTER
SUITE 200
PRINCETON, NJ 08540
PHONE 609-920-0268

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS

SCALE: (H) AS NOTED (V) .

DATE: 2017 - 12 - 22

SHEET: 41

REV. No: 0

DS2

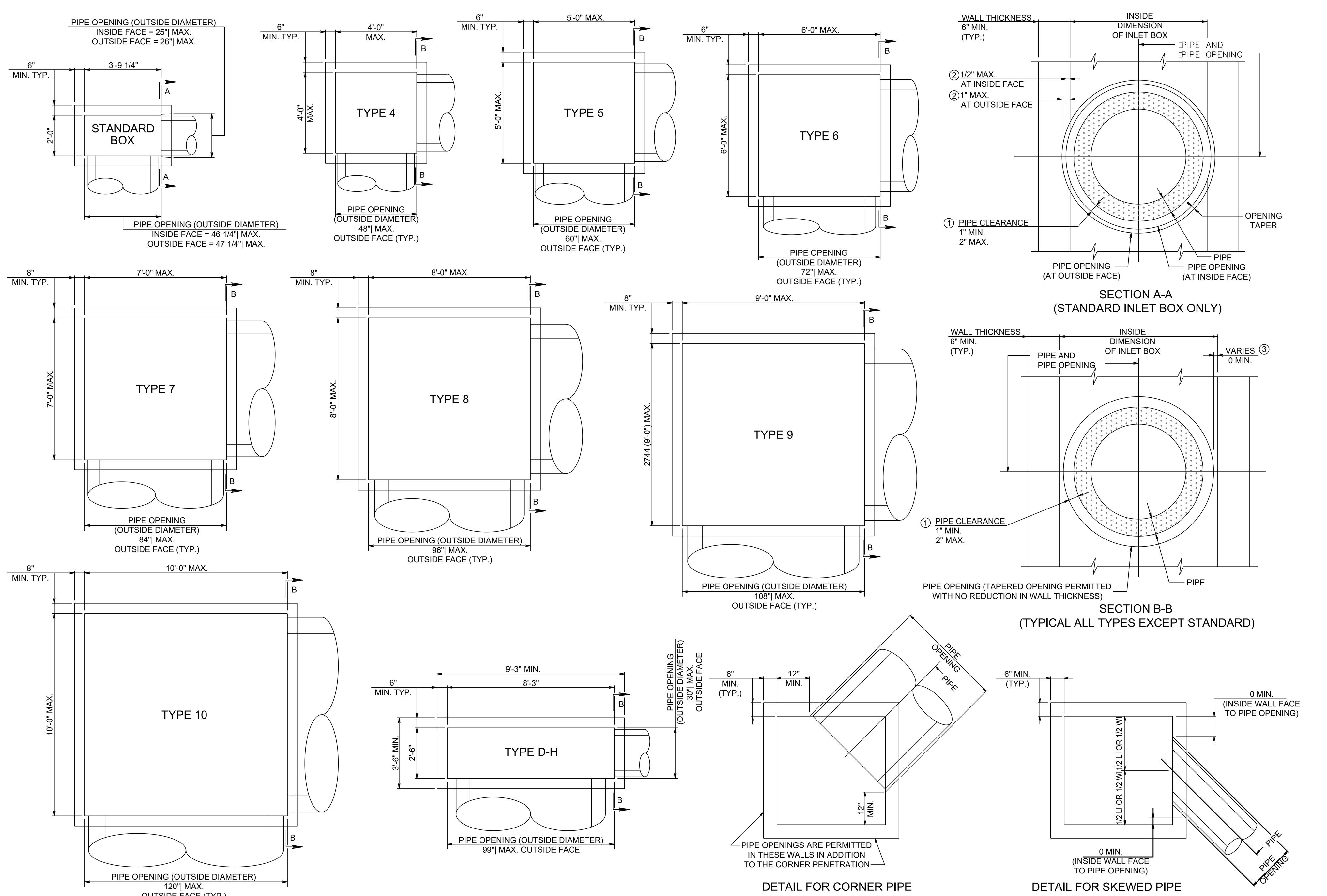
NOTES

1. CONSTRUCT INLET BOXES IN ACCORDANCE WITH THE REQUIREMENTS OF PENNDOT PUBLICATION 408, SECTION 714.
2. ONLY PRECAST INLET BOXES SUPPLIED BY A MANUFACTURER LISTED IN PENNDOT BULLETIN 15 SHALL BE PERMITTED. USE CLASS AA CEMENT CONC. FOR PRECAST BOXES. SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL.
3. PROVIDE STANDARD INLET BOXES AND COVER ADJUSTMENT SLABS WITH A 24" X 46" OPENING TO ACCOMMODATE STANDARD TOP COMPONENTS.
4. FOR INLETS THAT DEVIATE FROM THE STANDARD SHOWN SUBMIT SPECIAL DETAILS AND DESIGN FOR THE INLET WALLS AND BASE TO THE ENGINEER FOR REVIEW AND APPROVAL. CONSTRUCT INLETS THAT EXCEED 5 FEET IN HEIGHT WITH STEPS SIMILAR TO MANHOLES (SEE LADDER BAR DETAIL). FOR INLETS OTHER THAN AS SHOWN, PROVIDE REINFORCEMENT BASED ON HS25 LOADING AND IN ACCORDANCE WITH PENNDOT PUBLICATION 408.
5. LOCATE PIPE OR PIPES, AS INDICATED, WITH THE INLET BOTTOM SHAPED TO CHANNEL THE FLOW TOWARD THE OUTLET PIPE. WHEN PROJECT CONDITIONS REQUIRE PIPE BLOCKOUTS TO BE FORMED WITHIN 4" FROM THE TOP OF THE INLET BOX, PROVIDE AN ADDITIONAL #3 REINFORCEMENT BAR LOCATED 1 5/8" FROM THE TOP OF THE INLET BASE, FULL WIDTH ALONG THE INLET FACE. REMOVE ANY VISIBLE PORTION OF THE BAR IF REQUIRED DURING INSTALLATION AND PRIOR TO JOINING THE PIPE TO THE INLET. IF REINFORCED CONCRETE PIPE IS USED, THE PIPE BLOCKOUT MAY BE FORMED "FLUSH" WITH THE INLET BASE. LIMIT PIPE BLOCKOUT OF WALL TO 1".
6. PLACE SUBBASE MATERIAL MEETING THE REQUIREMENTS OF PENNDOT PUBLICATION 408, SECTION 350.2, IN LAYERS 4" THICK, COMPACTED TO A DENSITY SATISFACTORY TO THE ENGINEER AND INCIDENTAL TO THE INLET PAY ITEM.
7. FOR PIPE DIAMETERS LARGER THAN 48" RCP OR 54" CMP, USE A MODIFIED INLET BOX (SEE DETAIL).
8. PROVIDE CONSTRUCTION JOINTS AS REQUIRED FOR INLET BOXES THAT ARE NOT MONOLITHIC (SEE DETAILS A & B).
9. TAPERS MAY BE PROVIDED ON VERTICAL FACES OF PRECAST INLET BOX BASE UNITS AND TOPS TO FACILITATE FORM STRIPPING. TAPERS WILL RESULT IN INTERNAL BOTTOM DIMENSIONS THAT VARY TO A MAX. OF 1"
10. PROVIDE SUITABLE LIFTING DEVICES FOR HANDLING AND INSTALLATION. GALVANIZED METAL DEVICES AS SPECIFIED IN PENNDOT PUBLICATION 408, SECTION 1105.
11. CONTRACTOR SHALL PROVIDE STANDARD BOXES OR MODIFIED INLET BOX BASES AS NECESSARY IN ORDER TO ACCOMMODATE PIPE SIZES AND ALIGNMENTS AS SHOWN ON THE PLANS.

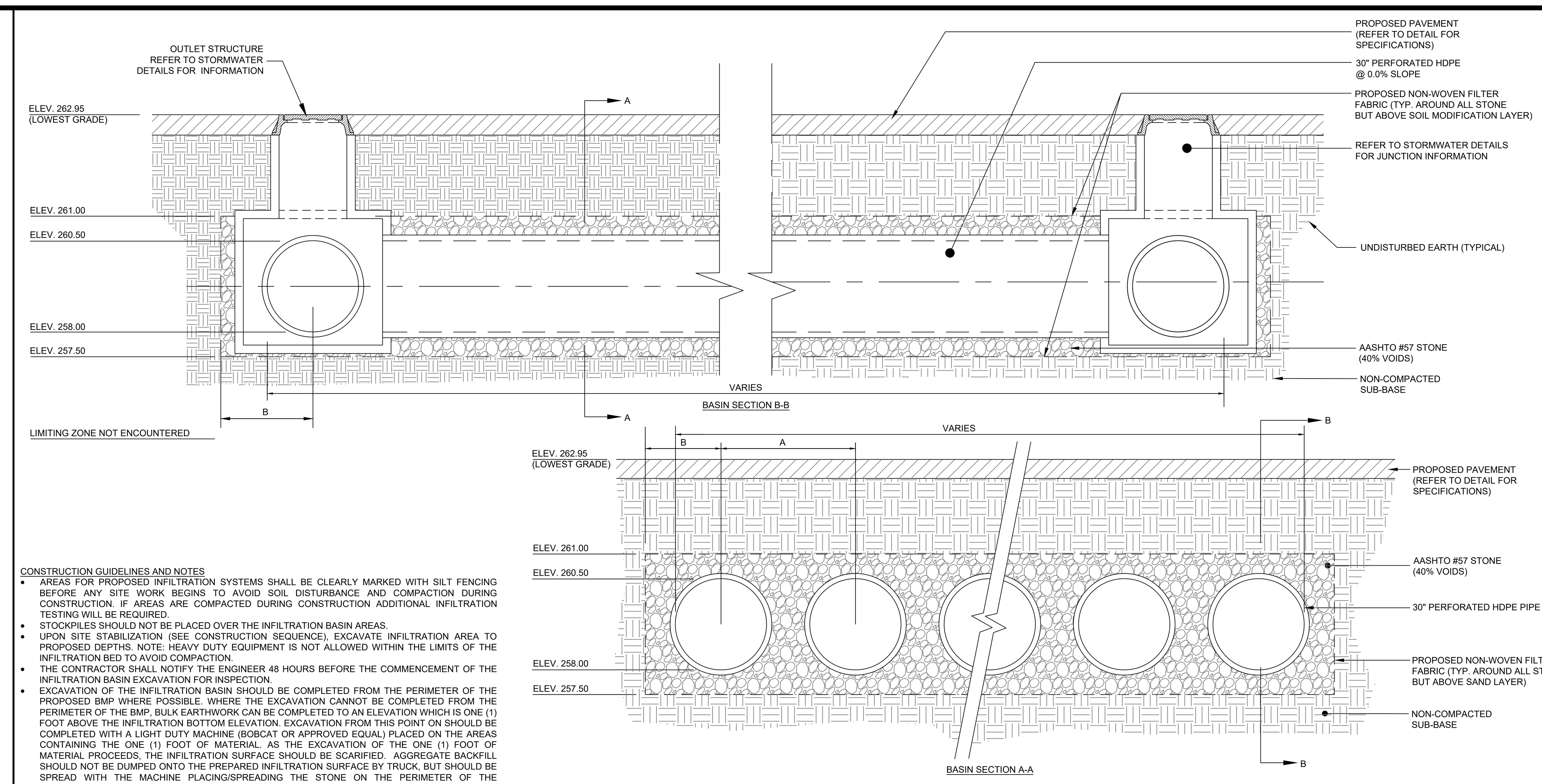
LEGEND

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

OUTSIDE FACE - OUTSIDE FACE OF INLET BOX WALL
INSIDE FACE - INSIDE FACE OF INLET BOX WALL

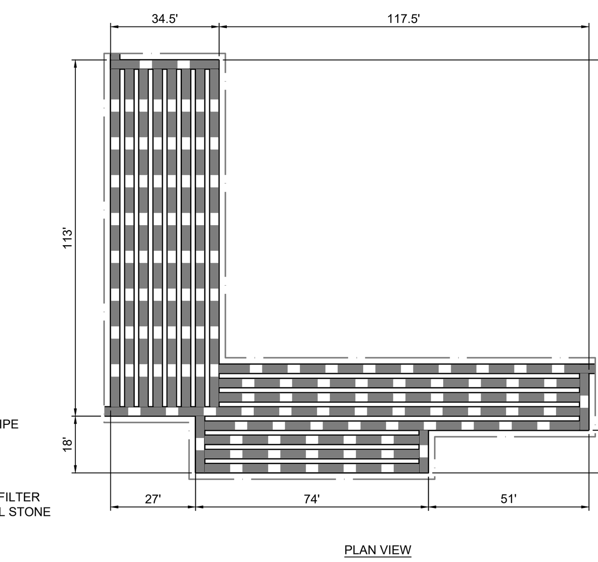


01 STANDARD INLET BOXES - PRECAST
NOT TO SCALE



SOIL MODIFICATION TABLE FOR K3 PERMEABILITY SOIL CLASS								
PERMISSIBLE SOIL TYPES, BASED ON USDA CLASSIFICATION	RANGES OF USDA PARTICLE SIZE PERCENTAGE						TYPICAL INFILTRATION RATES FOR K3 PERMISSIBLE SOIL TYPES (IN/HR)	
	SAND		SILT		CLAY		MIN	MAX
	MIN	MAX	MIN	MAX	MIN	MAX		
SANDY, LOAM SAND	45	70	0	50	20	30	2.0	6.0

SIZE	A	B
30"	4.42'	3.25'



CONSTRUCTION GUIDELINES AND NOTES

- AREAS FOR PROPOSED INFILTRATION SYSTEMS SHALL BE CLEARLY MARKED WITH SILT FENCING BEFORE ANY SITE WORK BEGINS TO AVOID SOIL DISTURBANCE AND COMPACTION DURING CONSTRUCTION. IF AREAS ARE COMPACTED DURING CONSTRUCTION ADDITIONAL INFILTRATION TESTING WILL BE REQUIRED.
- STOCKPILES SHOULD NOT BE PLACED OVER THE INFILTRATION BASIN AREAS.
- UPON SITE STABILIZATION (SEE CONSTRUCTION SEQUENCE), EXCAVATE INFILTRATION AREA TO PROPOSED DEPTHS. NOTE: HEAVY DUTY EQUIPMENT IS NOT ALLOWED WITHIN THE LIMITS OF THE INFILTRATION BED TO AVOID COMPACTION.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE COMMENCEMENT OF THE INFILTRATION BASIN EXCAVATION FOR INSPECTION.
- EXCAVATION OF THE INFILTRATION BASIN SHOULD BE COMPLETED FROM THE PERIMETER OF THE PROPOSED BMP WHERE POSSIBLE. WHERE THE EXCAVATION CANNOT BE COMPLETED FROM THE PERIMETER OF THE BMP, BULK EARTHWORK CAN BE COMPLETED TO AN ELEVATION WHICH IS ONE (1) FOOT ABOVE THE INFILTRATION BOTTOM ELEVATION. EXCAVATION FROM THIS POINT ON SHOULD BE COMPLETED WITH A LIGHT DUTY MACHINE (BOBCAT OR APPROVED EQUAL) PLACED ON THE AREAS CONTAINING THE ONE (1) FOOT OF MATERIAL. AS THE EXCAVATION OF THE ONE (1) FOOT OF MATERIAL PROCEEDS, THE INFILTRATION SURFACE SHOULD BE SCARIFIED. AGGREGATE BACKFILL SHOULD NOT BE DUMPED ONTO THE PREPARED INFILTRATION SURFACE BY TRUCK, BUT SHOULD BE SPREAD WITH THE MACHINE PLACING/SPREADING THE STONE ON THE PERIMETER OF THE INFILTRATION SURFACE OR TRACKING OVER A MINIMUM OF ONE (1) FOOT AGGREGATE.
- THE USE OF LOW GROUND PRESSURE (LGP) MACHINES IS ALLOWED AS LONG AS THE SPECIFICATIONS OF THE MACHINE ARE VERIFIED AND APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE PLACEMENT STONE BED AND PIPING FOR INSPECTION AND RECOMMENDATION IF ADDITIONAL INFILTRATION TESTING IS REQUIRED.
- PLACE GEOTEXTILE AND RECHARGE BED AGGREGATE IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION TO PREVENT ACCUMULATION OF DEBRIS OR SEDIMENT. PREVENT RUNOFF AND SEDIMENT FROM ENTERING THE STORAGE BED DURING THE PLACEMENT OF THE GEOTEXTILE AND AGGREGATE BED.
- PLACE GEOTEXTILE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF 18 INCHES. FABRIC SHALL BE SECURED AT LEAST 4 FEET OUTSIDE OF BED.
- INSTALL AGGREGATE COURSE IN LIFTS OF 6-8 INCHES. LIGHTLY COMPACT EACH LAYER WITH EQUIPMENT, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
- COMPLETE SURFACE GRADING ABOVE SUBSURFACE INFILTRATION SYSTEM, USING SUITABLE EQUIPMENT TO AVOID EXCESS COMPACTION.
- THE BOTTOM STONE SUBBASE SHOULD BE SPREAD BY HAND.
- THE BOTTOM OF THE INFILTRATION BED SHALL BE AT A LEVEL GRADE.

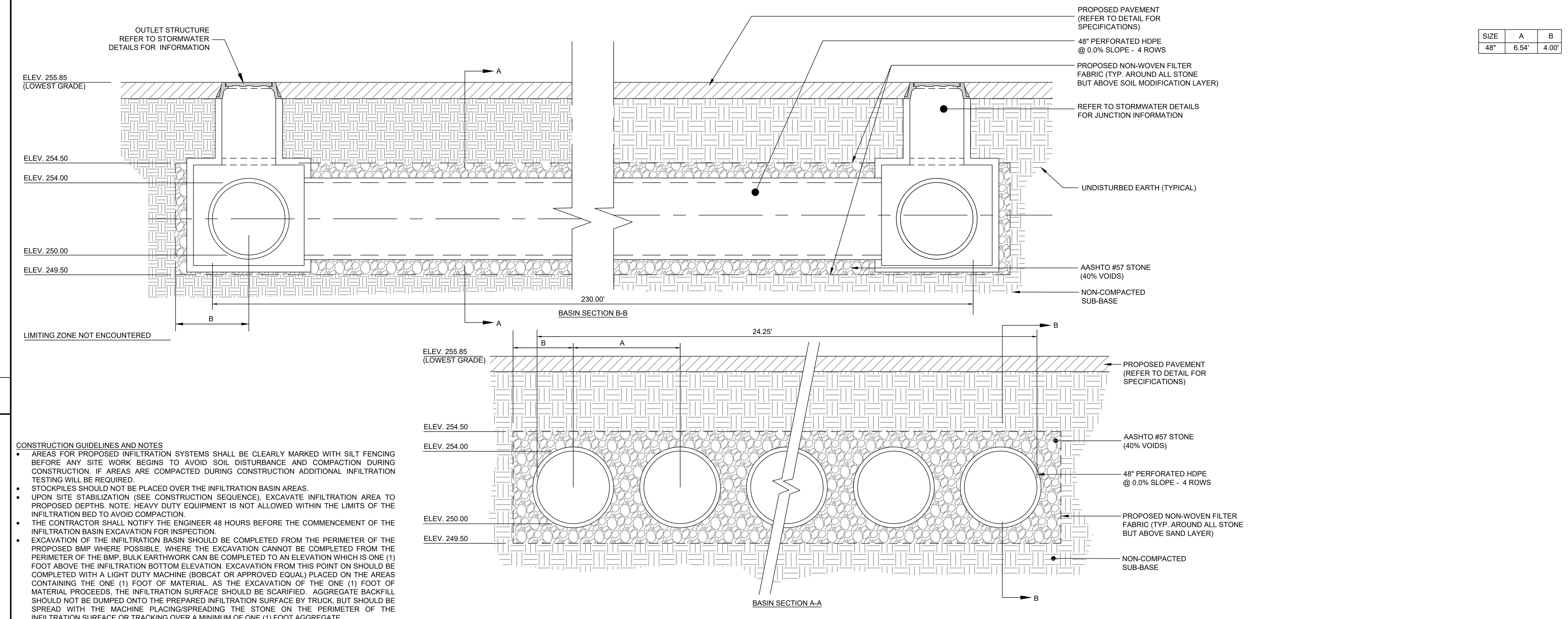
SEQUENCE OF CONSTRUCTION

- EXCAVATE UNDERGROUND BASIN AREA TO PROPOSED DEPTHS.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE COMMENCEMENT OF THE UNDERGROUND BASIN EXCAVATION FOR INSPECTION.
- INSTALL SOIL MODIFICATION LAYER IN ALL FILL AREAS.
- PLACE GEOTEXTILE AND BED AGGREGATE. PREVENT RUNOFF AND SEDIMENT FROM ENTERING THE STORAGE BED DURING THE PLACEMENT OF THE GEOTEXTILE AND AGGREGATE BED.
- PLACE GEOTEXTILE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF 18 INCHES. FABRIC SHALL BE SECURED AT LEAST 4 FEET OUTSIDE OF BED.
- INSTALL AGGREGATE AND STORAGE PIPES TO GRADES INDICATED ON THE DRAWINGS.
- BACKFILL UNDERGROUND BASIN WITH APPROPRIATE FILL TO PROPOSED GRADE AS SHOWN ON THE GRADING PLAN.
- DO NOT CONNECT UPSTREAM STORM SEWER UNTIL SITE HAS BEEN FULLY STABILIZED. THE SITE IS FULLY STABILIZED WHEN A UNIFORM COVERAGE OR DENSITY OF 70% ACROSS ALL DISTURBED AREAS HAS BEEN ACHIEVED.

GEOTEXTILE SPECIFICATION

GEOTEXTILE SHALL BE NON-WOVEN, RATED FOR SEPARATION AND DRAINAGE IN ACCORDANCE WITH PENNDOT PUBLICATION 408 SPECIFICATION FOR CLASS "4", TYPE "A" GEOTEXTILE - US FABRICS US 270NW OR APPROVED EQUAL.

02 SUBSURFACE INFILTRATION BASIN P-5
NOT TO SCALE



SIZE	A	B
48"	6.54'	4.00'

CONSTRUCTION GUIDELINES AND NOTES

- AREAS FOR PROPOSED INFILTRATION SYSTEMS SHALL BE CLEARLY MARKED WITH SILT FENCING BEFORE ANY SITE WORK BEGINS TO AVOID SOIL DISTURBANCE AND COMPACTION DURING CONSTRUCTION. IF AREAS ARE COMPACTED DURING CONSTRUCTION ADDITIONAL INFILTRATION TESTING WILL BE REQUIRED.
- STOCKPILES SHOULD NOT BE PLACED OVER THE INFILTRATION BASIN AREAS.
- UPON SITE STABILIZATION (SEE CONSTRUCTION SEQUENCE), EXCAVATE INFILTRATION AREA TO PROPOSED DEPTHS. NOTE: HEAVY DUTY EQUIPMENT IS NOT ALLOWED WITHIN THE LIMITS OF THE INFILTRATION BED TO AVOID COMPACTION.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE COMMENCEMENT OF THE INFILTRATION BASIN EXCAVATION FOR INSPECTION.
- EXCAVATION OF THE INFILTRATION BASIN SHOULD BE COMPLETED FROM THE PERIMETER OF THE PROPOSED BMP WHERE POSSIBLE. WHERE THE EXCAVATION CANNOT BE COMPLETED FROM THE PERIMETER OF THE BMP, BULK EARTHWORK CAN BE COMPLETED TO AN ELEVATION WHICH IS ONE (1) FOOT ABOVE THE INFILTRATION BOTTOM ELEVATION. EXCAVATION FROM THIS POINT ON SHOULD BE COMPLETED WITH A LIGHT DUTY MACHINE (BOBCAT OR APPROVED EQUAL) PLACED ON THE AREAS CONTAINING THE ONE (1) FOOT OF MATERIAL. AS THE EXCAVATION OF THE ONE (1) FOOT OF MATERIAL PROCEEDS, THE INFILTRATION SURFACE SHOULD BE SCARIFIED. AGGREGATE BACKFILL SHOULD NOT BE DUMPED ONTO THE PREPARED INFILTRATION SURFACE BY TRUCK, BUT SHOULD BE SPREAD WITH THE MACHINE PLACING/SPREADING THE STONE ON THE PERIMETER OF THE INFILTRATION SURFACE OR TRACKING OVER A MINIMUM OF ONE (1) FOOT AGGREGATE.
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- COMPLETE SURFACE GRADING ABOVE SUBSURFACE INFILTRATION SYSTEM, USING SUITABLE EQUIPMENT TO AVOID EXCESS COMPACTION.
- THE BOTTOM STONE SUBBASE SHOULD BE SPREAD BY HAND.
- THE BOTTOM OF THE INFILTRATION BED SHALL BE AT A LEVEL GRADE.

SEQUENCE OF CONSTRUCTION

- EXCAVATE UNDERGROUND BASIN AREA TO PROPOSED DEPTHS.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS BEFORE THE COMMENCEMENT OF THE UNDERGROUND BASIN EXCAVATION FOR INSPECTION.
- INSTALL SOIL MODIFICATION LAYER IN ALL FILL AREAS.
- PLACE GEOTEXTILE AND BED AGGREGATE. PREVENT RUNOFF AND SEDIMENT FROM ENTERING THE STORAGE BED DURING THE PLACEMENT OF THE GEOTEXTILE AND AGGREGATE BED.
- PLACE GEOTEXTILE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF 18 INCHES. FABRIC SHALL BE SECURED AT LEAST 4 FEET OUTSIDE OF BED.
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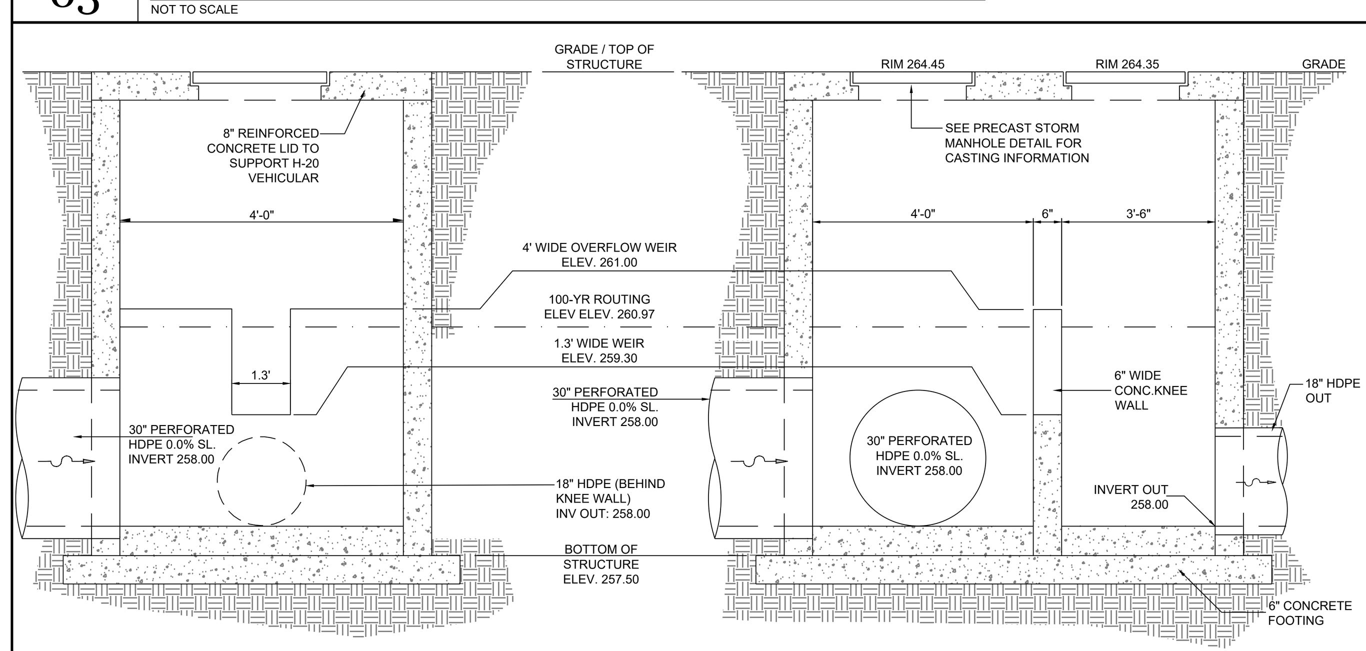
GEOTEXTILE SHALL BE NON-WOVEN, RATED FOR SEPARATION AND DRAINAGE IN ACCORDANCE WITH PENNDOT PUBLICATION 408 SPECIFICATION FOR CLASS "4", TYPE "A" GEOTEXTILE - US FABRICS US 270NW OR APPROVED EQUAL.

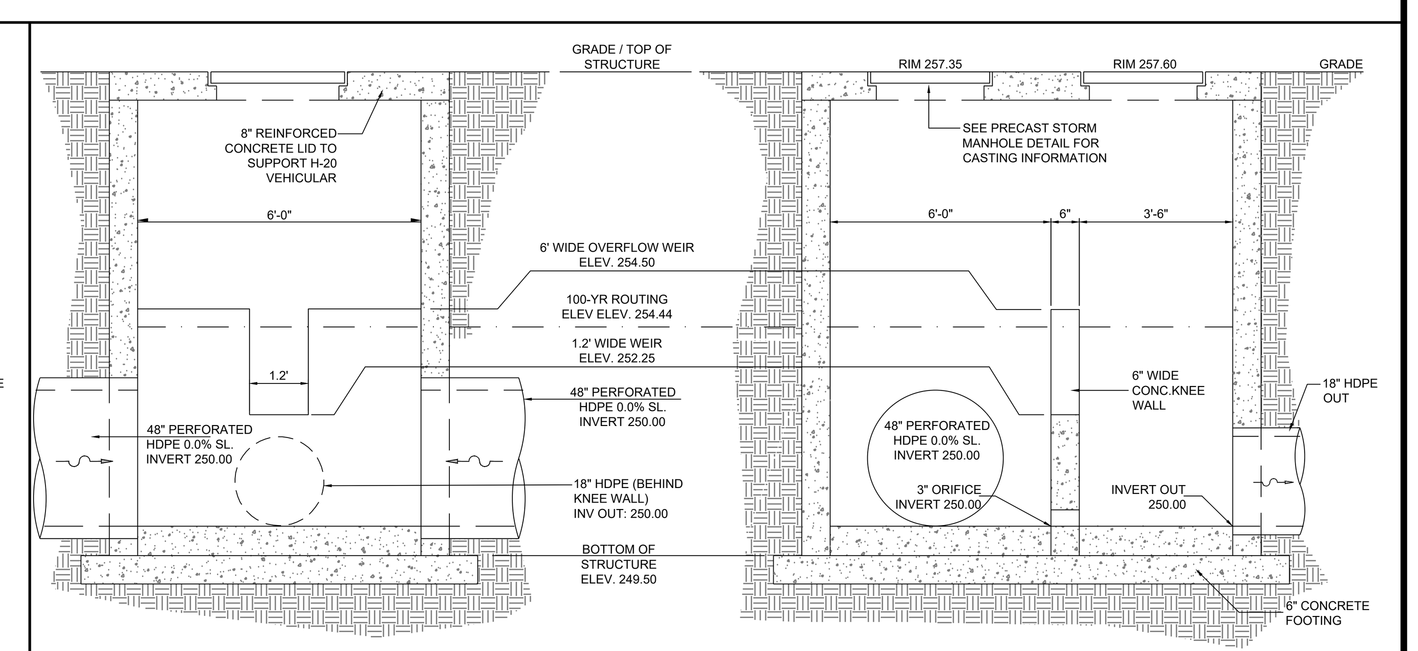
BACKFILL NOTE:

- IN AREAS OF FILL, CONTRACTOR SHALL COORDINATE WITH ON-SITE GEOTECHNICAL ENGINEER TO ENSURE THE SOIL MATERIAL IS ADEQUATE AS STRUCTURAL BACKFILL FOR BASIN INSTALLATION. A COPY OF BACKFILL SPECIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

03 SUBSURFACE EXTENDED DETENTION BASIN P-6
NOT TO SCALE



04 SUBSURFACE INFILTRATION BASIN P-5 OUTLET STRUCTURE NO. D150
NOT TO SCALE



05 SUBSURFACE EXT. DET. BASIN P-6 OUTLET STRUCTURE NO. D720
NOT TO SCALE

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 076556

NOT FOR CONSTRUCTION

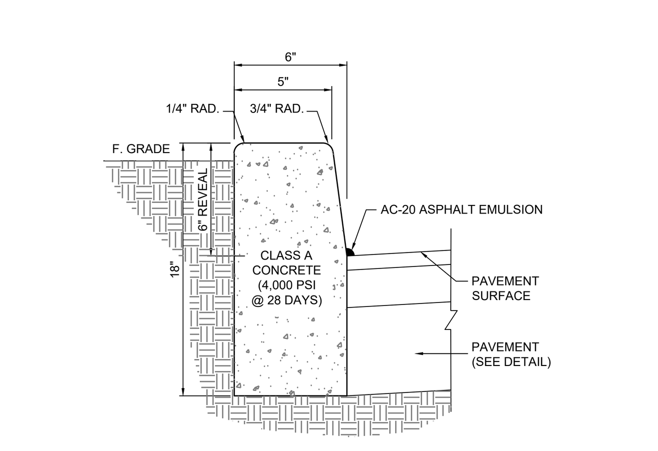
PROJECT No:	140012
DRAWN BY:	B. NAGENGAST / M. RIVEZZI
CHECKED BY:	R. WHITMORE
CAD I.D. #:	21-22-23_DS_140012

LANDCORE Engineering Consultants, P.C.
PHILADELPHIA, PA 8614 MONTGOMERY AVENUE WYNDMOOR, PA 19038 PHONE 215-836-2510
LANCASTER, PA 1853 WILLIAM PENN WAY P.O. BOX 10368 LANCASTER, PA 17605-0368 PHONE 717-672-0614
PITTSBURGH, PA 201 PENN CENTER BOULEVARD SUITE 400 PITTSBURGH, PA 15235 PHONE 412-253-6569
PRINCETON, NJ 100 OVERLOOK CENTER SUITE 200 PRINCETON, NJ 08540 PHONE 609-920-0268

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

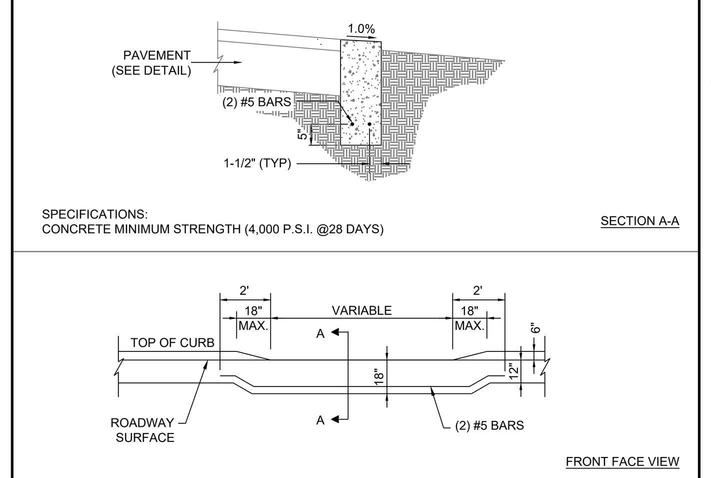
TITLE: POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS

SCALE: (H) AS NOTED (V) .
DATE: 2017 - 12 - 22
SHEET: 41 DS3
REV. No: 0



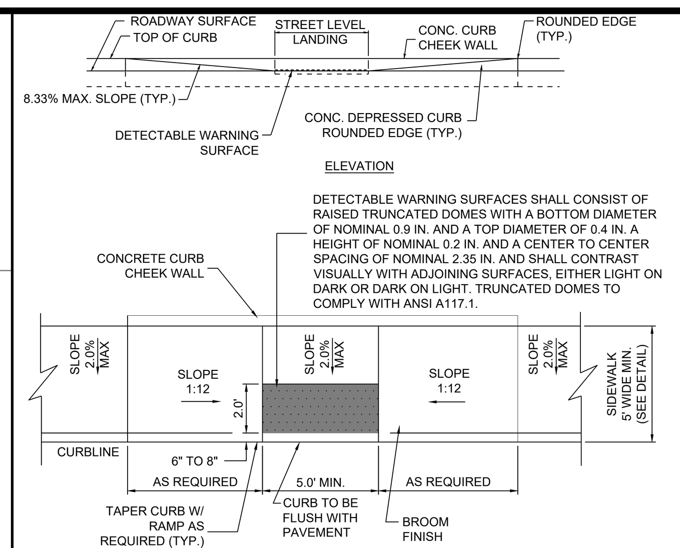
NOTES:
1. ANY EXCAVATION BELOW DESIRED GRADE DUE TO OVER EXCAVATION OR WET SOIL CONDITIONS SHALL BE BACKFILLED WITH 3/4" CLEAN CRUSHED STONE. ALL SUBGRADES SHALL BE APPROVED BY THE TOWNSHIP ENGINEER PRIOR TO POURING.
2. TRANSVERSE JOINTS 3/4" WIDE SHALL BE INSTALLED IN THE CURB 20'-0" APART AND SHALL BE FILLED WITH PREFORMED, BITUMINOUS-IMPREGNATED FIBER JOINT FILLER, COMPLYING WITH THE REQUIREMENTS OF AASHTO M-213, RECESSED 1/4" FROM THE FRONT FACE AND TOP OF THE CURB.

01 CONCRETE CURB
NOT TO SCALE



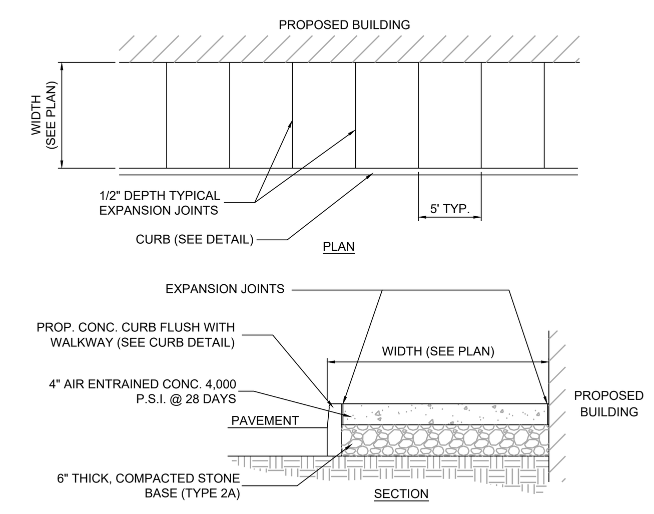
NOTES:
1. ANY EXCAVATION BELOW DESIRED GRADE DUE TO OVER EXCAVATION OR WET SOIL CONDITIONS SHALL BE BACKFILLED WITH 3/4" CLEAN CRUSHED STONE. ALL SUBGRADES SHALL BE APPROVED BY THE TOWNSHIP ENGINEER PRIOR TO POURING.
2. TRANSVERSE JOINTS 3/4" WIDE SHALL BE INSTALLED IN THE CURB 20'-0" APART AND SHALL BE FILLED WITH PREFORMED, BITUMINOUS-IMPREGNATED FIBER JOINT FILLER, COMPLYING WITH THE REQUIREMENTS OF AASHTO M-213, RECESSED 1/4" FROM THE FRONT FACE AND TOP OF THE CURB.

02 CONCRETE FLUSH CURB
NOT TO SCALE



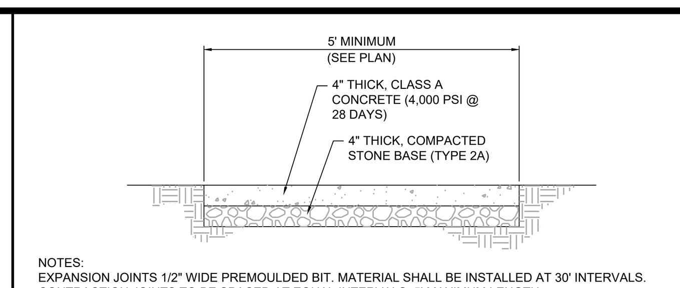
NOTES:
1. CURB RAMPS MAY NOT EXTEND INTO ANY PORTION OF THE PARKING SPACE OR ASSOCIATED STRIPED ISLAND.
2. CURB RAMPS, PAVEMENT MARKINGS, & APPLICABLE SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST A.D.A. ACCESSIBILITY GUIDELINES.
3. CONTRACTOR TO CONSTRUCT DETECTABLE WARNINGS ONLY WHEN SIDEWALK INTERSECTS A VEHICULAR TRAVELED WAY

03 ADA HANDICAP RAMP
NOT TO SCALE



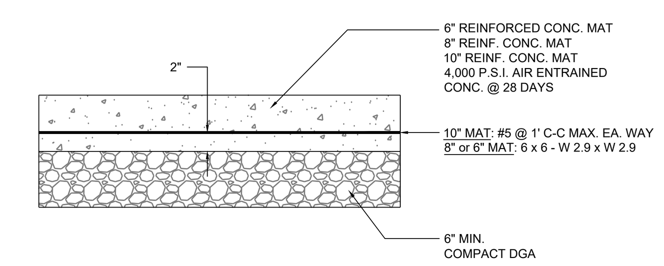
NOTE:
1. MAX. CROSS SLOPE 1/4" PER FOOT PITCHED AWAY FROM BUILDING.
2. EXPANSION JOINTS 1/2" WIDE PREMOULDED BIT. MATERIAL SHALL BE INSTALLED AT 30' INTERVALS. CONTRACTION JOINTS TO BE SPACED AT EQUAL INTERVALS, 5' MAXIMUM LENGTH.
3. REFER TO SITE PLAN FOR SIDEWALK WIDTH (W).

04 CONCRETE SIDEWALK
NOT TO SCALE

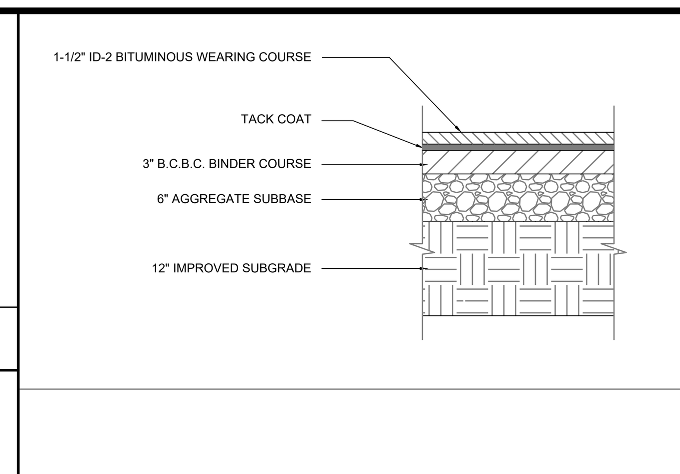


NOTES:
EXPANSION JOINTS 1/2" WIDE PREMOULDED BIT. MATERIAL SHALL BE INSTALLED AT 30' INTERVALS. CONTRACTION JOINTS TO BE SPACED AT EQUAL INTERVALS, 5' MAXIMUM LENGTH.

05 CONCRETE SIDEWALK
NOT TO SCALE

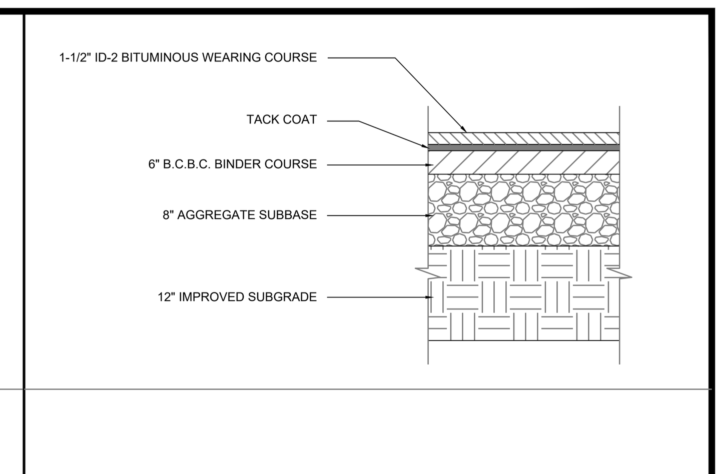


06 REINFORCED CONCRETE MAT
NOT TO SCALE



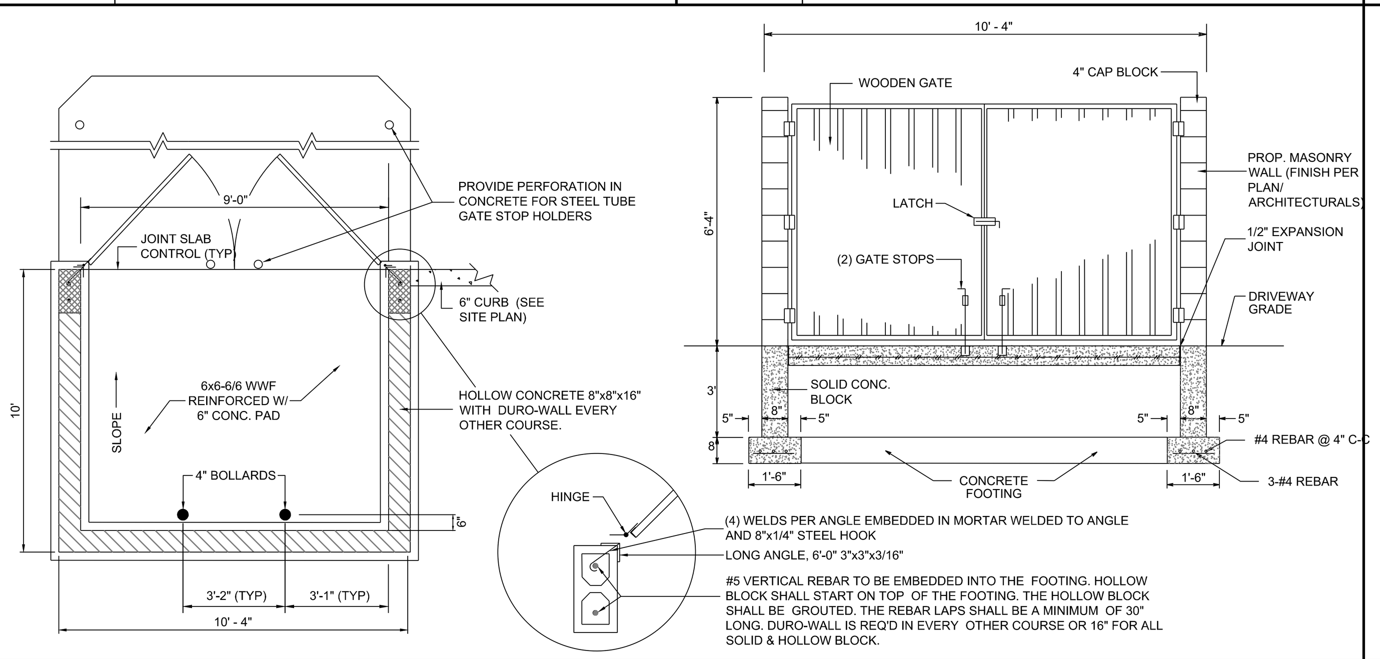
NOTE:
1. CBR VALUES SHALL BE OBTAINED BY GEOTECHNICAL ENGINEER PRIOR TO COMMENCEMENT OF PAVING.
2. REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL PAVEMENT DESIGN SPECIFICATIONS AND MATERIAL REQUIREMENTS.
3. AGGREGATE SUB-BASE SHALL BE AGGREGATE CONFORMING TO THE GRADATIONS OF TYPE 2A AGGREGATE. ON-SITE MATERIAL MAY BE USED IF DEEMED ADEQUATE.

07 ASPHALT PAVEMENT
NOT TO SCALE

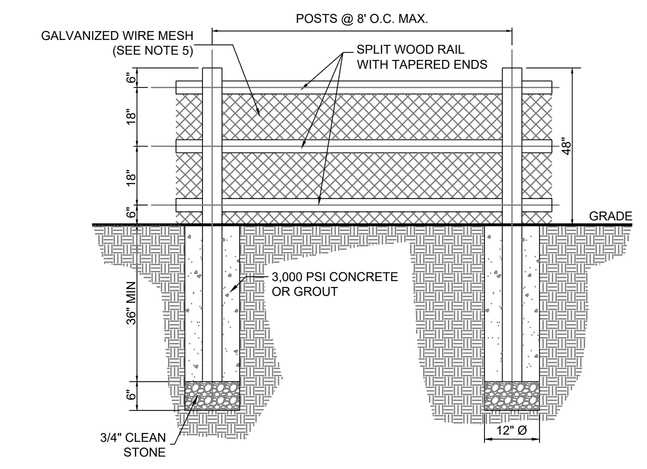


NOTE:
1. CBR VALUES SHALL BE OBTAINED BY GEOTECHNICAL ENGINEER PRIOR TO COMMENCEMENT OF PAVING.
2. REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL PAVEMENT DESIGN SPECIFICATIONS AND MATERIAL REQUIREMENTS.
3. AGGREGATE SUB-BASE SHALL BE AGGREGATE CONFORMING TO THE GRADATIONS OF TYPE 2A AGGREGATE. ON-SITE MATERIAL MAY BE USED IF DEEMED ADEQUATE.

08 HEAVY DUTY ASPHALT PVMT.
NOT TO SCALE

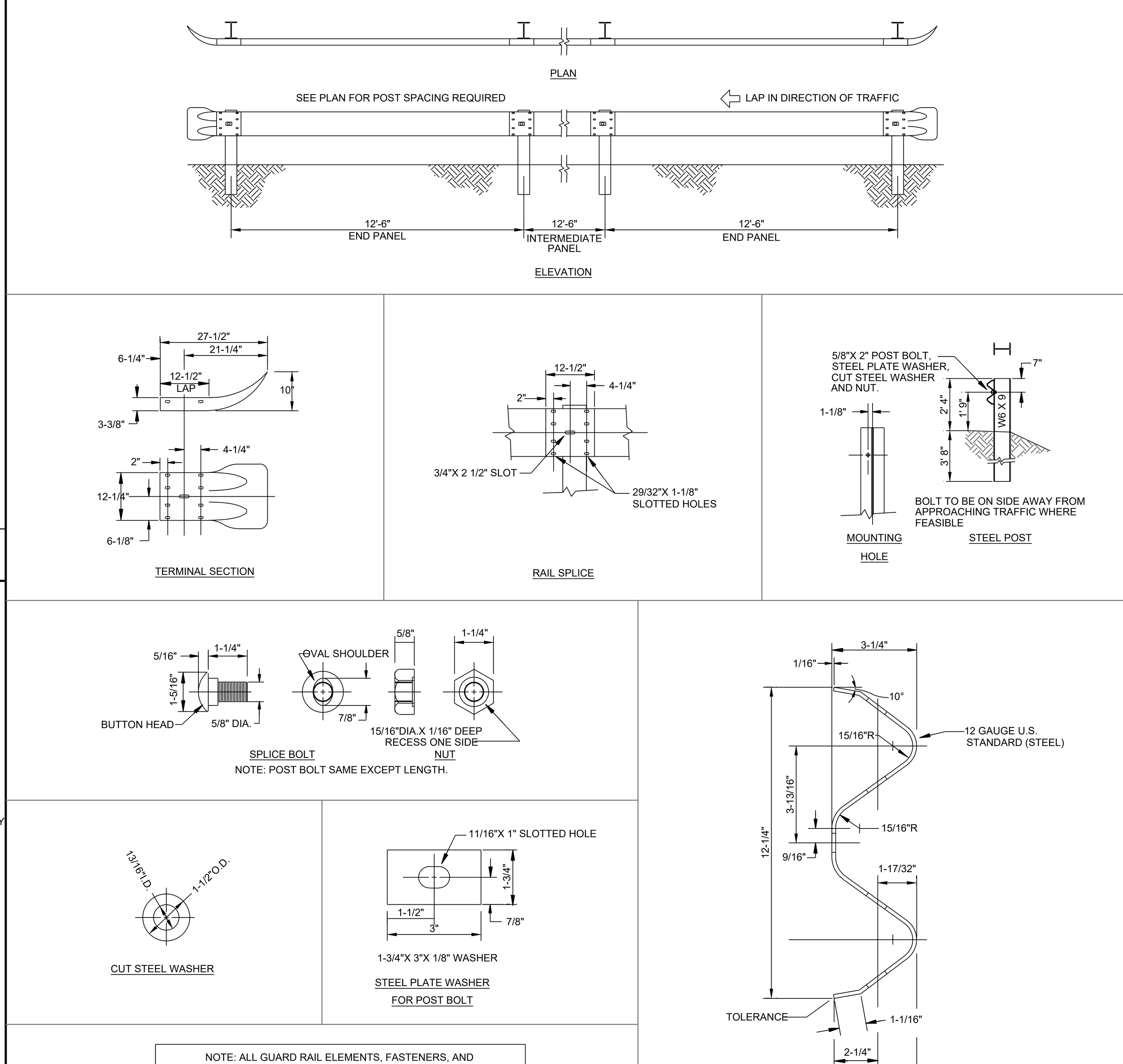


09 MASONRY TRASH ENCLOSURE - 10"x10'-4"
NOT TO SCALE



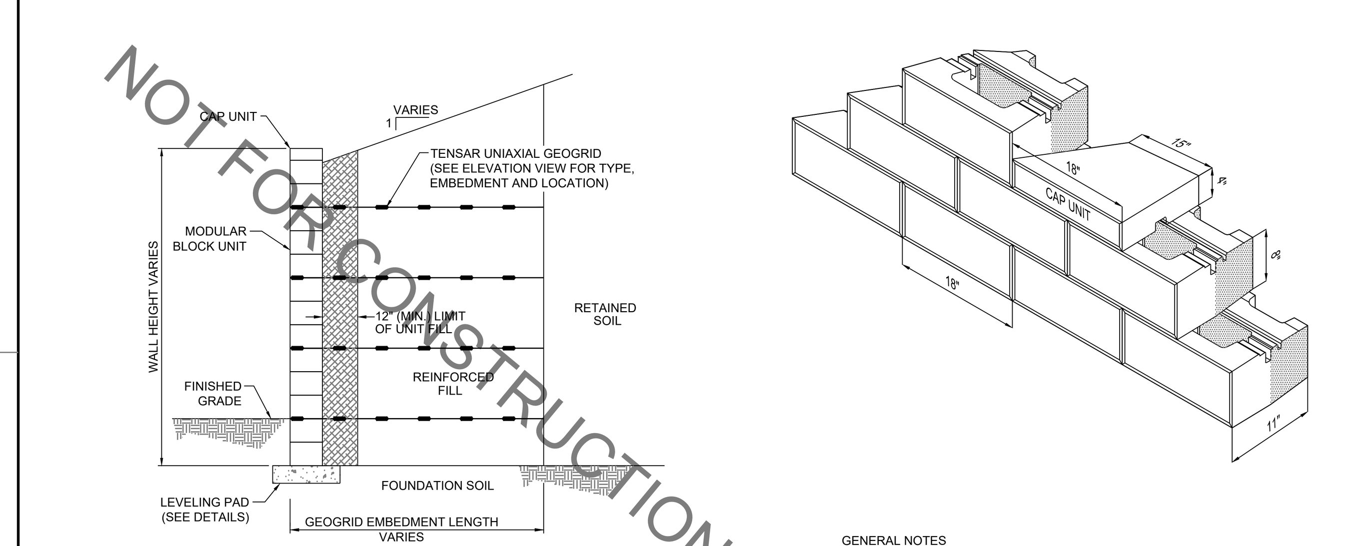
NOTES:
1. POST AND RAILS TO BE UNTREATED CEDAR OR PRESSURE TREATED PINE OR EQUIVALENT.
2. BACKFILL AND COMPACT 12" DEEP WITH 3/4" CLEAN STONE, PLACE IN 6" LIFTS.
3. PLACE 3,000 PSI CONCRETE OR GROUT AROUND THE POST UP TO BOTTOM OF THE TOP SOIL.
4. ADD THE TOP SOIL.
5. GALVANIZED WIRE MESH FENCE (13 GAGE) WITH VINYL COATING TO BE SECURED TO OUTSIDE OF FENCE.

10 POST & RAIL FENCE w/ WIRE MESH
NOT TO SCALE



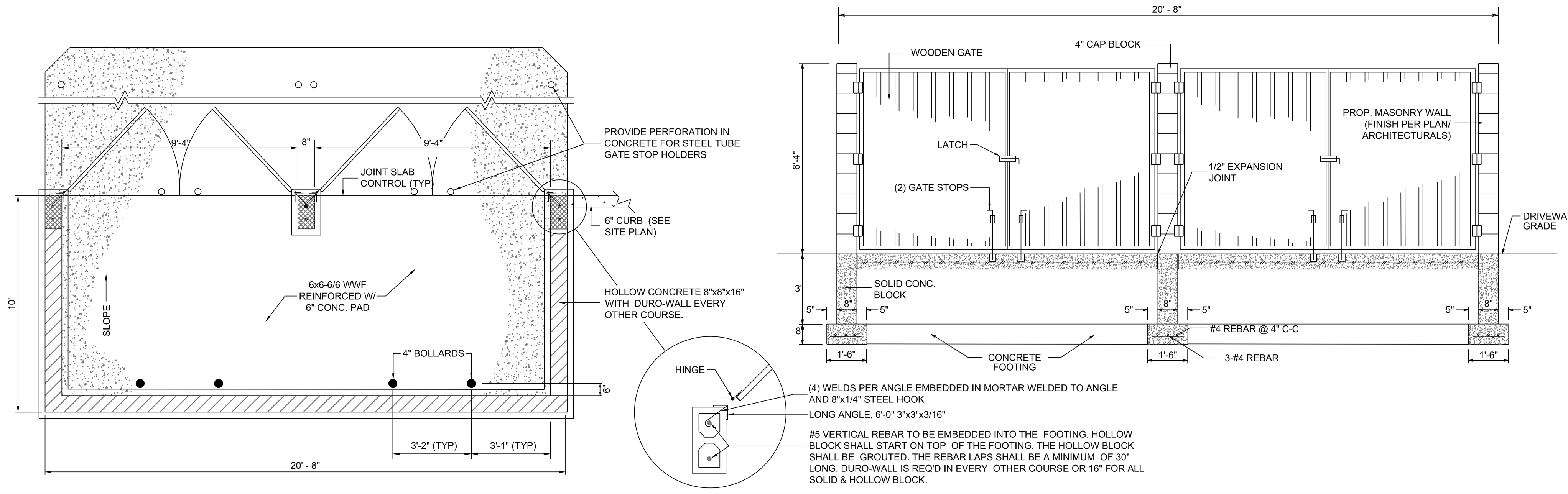
NOTE: ALL GUARD RAIL ELEMENTS, FASTENERS, AND TERMINAL SECTIONS SHALL MEET THE REQUIREMENTS OF AASHTO M 180.

13 STEEL GUIDE RAIL
NOT TO SCALE

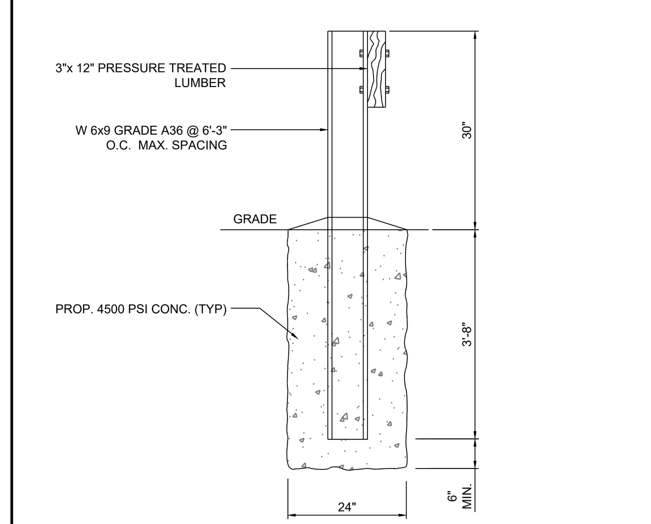


GENERAL NOTES
1. THE CONTRACTOR IS RESPONSIBLE TO HAVE THE WALL SYSTEM DESIGNED AND DETAILED. THE DESIGN AND DETAILS SHALL BE SUBMITTED FOR REVIEW.

11 MODULAR BLOCK RETAINING WALL
NOT TO SCALE



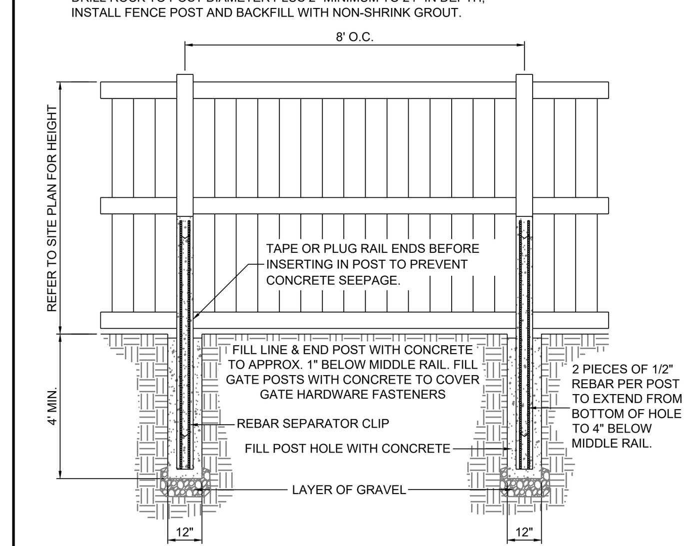
12 MASONRY TRASH ENCLOSURE - 10' x 20'-8"
NOT TO SCALE



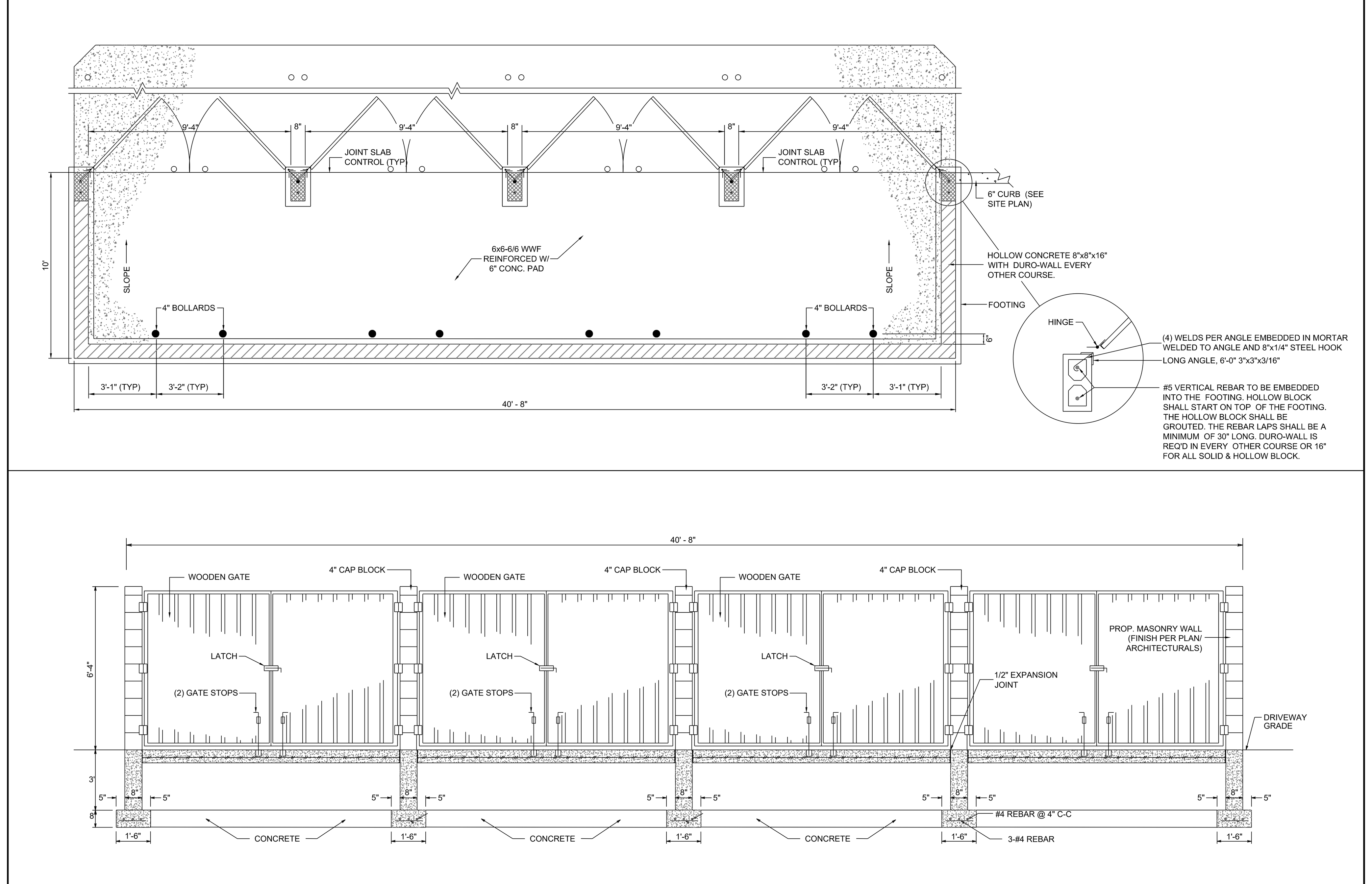
NOTES:
- RAIL TO BE IN ACCORDANCE WITH CURRENT D.O.T. STANDARDS.
- ALL LUMBER TO BE PRESSURE TREATED.
- GUIDE RAIL CAN BE REPLACED WITH AN APPROVED EQUAL.

14 TIMBER GUIDE RAIL
NOT TO SCALE

NOTE:
1. FENCE INSTALLER TO PROVIDE ALL HARDWARE NECESSARY FOR FENCE CONSTRUCTION AND OPERATION PER SITE DESIGN.
2. WHERE FENCE WILL BE FOUNDED ON COMPETENT ROCK, CORE DRILL ROCK TO POST DIAMETER PLUS 2" MINIMUM TO 24" IN DEPTH, INSTALL FENCE POST AND BACKFILL WITH NON-SHRINK GROUT.

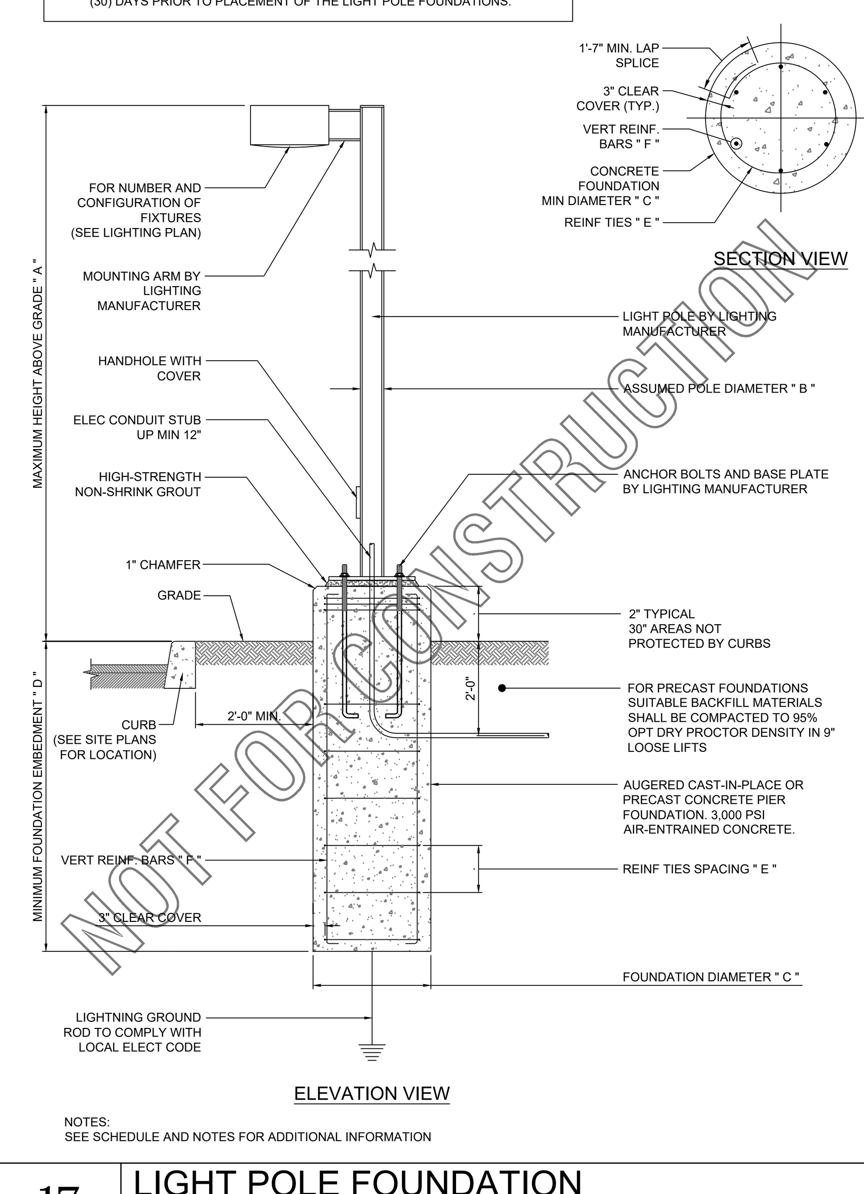


15 PVC FENCE
NOT TO SCALE



16 MASONRY TRASH ENCLOSURE - 10' x 40'-8"
NOT TO SCALE

LIGHT POLE FOUNDATION DESIGN CRITERIA
- MINIMUM REQUIRED ALLOWABLE BEARING PRESSURE = 1,000 PSF - ASSUMED (TO BE VERIFIED IN FIELD)
- SOIL FRICTION ANGLE = 30 DEG - ASSUMED (TO BE VERIFIED IN FIELD)
- SOIL DRY UNIT WEIGHT = 120 PCF - ASSUMED (TO BE VERIFIED IN FIELD)
- WIND PRESSURE = 30 PSF
- DETAILED DESIGN OF THE PROPOSED LIGHT POLE FOUNDATIONS WILL BE PROVIDED TO THE TOWNSHIP AND TOWNSHIP ENGINEER AT LEAST THIRTY (30) DAYS PRIOR TO PLACEMENT OF THE LIGHT POLE FOUNDATIONS.



NOTES:
SEE SCHEDULE AND NOTES FOR ADDITIONAL INFORMATION

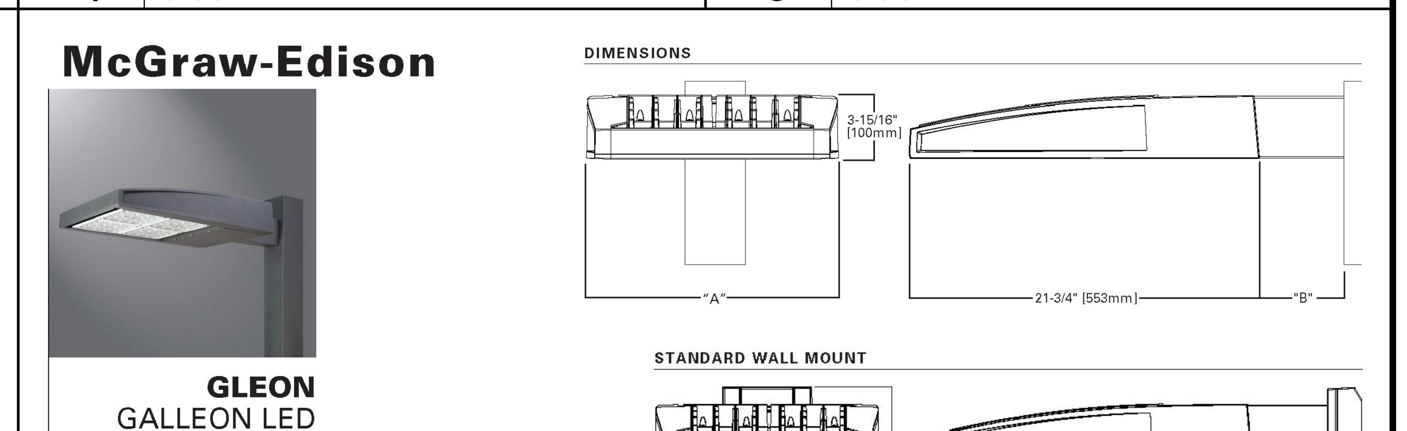
LIGHT POLE FOUNDATION NOTES
1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS, COORDINATE WITH ALL CONTRACT DRAWINGS, PROJECT SHOP DRAWINGS AND FIELD CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL ENSURE NO CONFLICTS ARISE BETWEEN LIGHT POLE FOUNDATIONS, STRUCTURES, AND UTILITIES. IF ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND DESIGN PLANS ARISE, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
2. THE CONTRACTOR SHALL HAVE A GEOTECHNICAL ENGINEER, LICENSED IN THE PROJECT'S STATE, ON SITE TO INSPECT FILL, MONITOR FILL COMPACTION AND TO VERIFY SUBGRADE ALLOWABLE BEARING CAPACITY AND SOIL DESIGN CRITERIA PRIOR TO CONSTRUCTION IN ACCORDANCE TO THE DESIGN ASSUMPTIONS STATED. UNSUITABLE MATERIALS FOUND SHALL BE REMEDIED AS PER THE DIRECTION OF THE ON SITE GEOTECHNICAL ENGINEER.
3. IF CONDITIONS IN THE FIELD ARE DIFFERENT THAN THOSE INDICATED THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
4. STRUCTURAL CONCRETE AND CONCRETING PRACTICES SHALL CONFORM WITH ACI-318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE." DETAILS SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE: DETAILS AND DETAILING OF CONCRETE REINFORCEMENT." FORMWORK SHALL CONFORM ACI-347 "GUIDE TO FORMWORK FOR CONCRETE", UNLESS OTHERWISE NOTED ON THE CONTRACT DOCUMENTS.
5. CONCRETE SHALL BE NORMAL WEIGHT STONE AGGREGATE WITH THE STATED MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS. HISTORICAL DATA OR LABORATORY TESTS FOR THE PRELIMINARY DESIGN MIX SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION. THE WATER-CEMENT RATIO FOR THE PROPOSED MIX DESIGN SHALL ACHIEVE AN AVERAGE 28-DAY STRENGTH OF 1,200 PSI GREATER THAN THE REQUIRED STRENGTH ON LABORATORY TEST RESULTS.
6. CONCRETE SHALL HAVE A SLUMP NO GREATER THAN 4" TO WITHIN A TOLERANCE OF 1".
7. EXPOSED CONCRETE SHALL BE AIR ENTRAINED, 6% (WITHIN 1% TOLERANCE), CONFORMING TO ASTM C260.
8. CONCRETE SHALL BE CONSOLIDATED IN PLACE USING AN INTERNAL VIBRATOR.
9. REINFORCING STEEL BARS SHALL BILLET STEEL ASTM A615, GRADE 60. ALL REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS OR STIRRUPS SHALL BE PROVIDED BY THE CONTRACTOR TO FURNISH SUPPORT FOR ALL BARS. BAR SUPPORTS IN CONTACT WITH EXPOSED SURFACES SHALL BE PLASTIC TIPPED. ALL ACCESSORIES SHALL BE GALVANIZED.
10. ALL SPLICES OF REINFORCING BARS NOT INDICATED ARE TO BE LTS AS PER THE REINFORCING SPLICE SCHEDULE OR 40 BAR DIAMETERS. DISCONTINUOUS ENDS OF CONTINUOUS BARS SHALL BE STANDARD HOOKS.
11. ALL SPLICES OF REINFORCING BARS NOT INDICATED ARE TO BE LTS AS PER THE REINFORCING SPLICE SCHEDULE OR 40 BAR DIAMETERS. DISCONTINUOUS ENDS OF CONTINUOUS BARS SHALL BE STANDARD HOOKS.
12. IF CAVING OF DRILLED HOLES ARE ENCOUNTERED, CONTRACTOR SHALL PROVIDE BENTONITE SLURRY IN PERMANENT CASINGS FOR DRILLED CONCRETE PIER FOUNDATIONS.
13. CONCRETE SHALL ATTAIN 80% OF THE DESIGN STRENGTH OR CURE FOR A MINIMUM OF 7-DAYS PRIOR TO THE INSTALLATION OF THE LIGHT POLES OR ALL LIGHTPOLES ARE TO BE SUITABLY BRACED AGAINST WIND LOADS DURING THE ABOVE MENTIONED TIMEFRAME.

LIGHT POLE FOUNDATION SCHEDULE

MAXIMUM HEIGHT ABOVE GRADE "A"	25'-0"
ASSUMED AVERAGE POLE DIAMETER "B"	8"
No. OF FIXTURES	SINGLE
MINIMUM FOUNDATION DIAMETER "C"	30"
MINIMUM FOUNDATION DEPTH "D"	6'-6"
REINFORCING TIES "E"*	#4 TIES @12"C-C
VERTICAL HOOKED REINFORCEMENT "F"	(8) #5 BARS EQUALLY SPACED

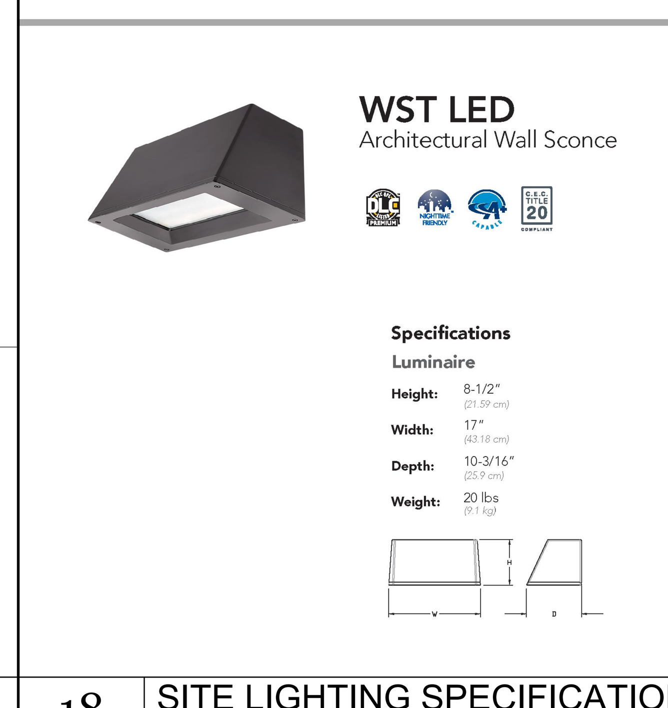
* = ADD 3 TIES, 1½" C-C, AT TOP OF THE FOUNDATION

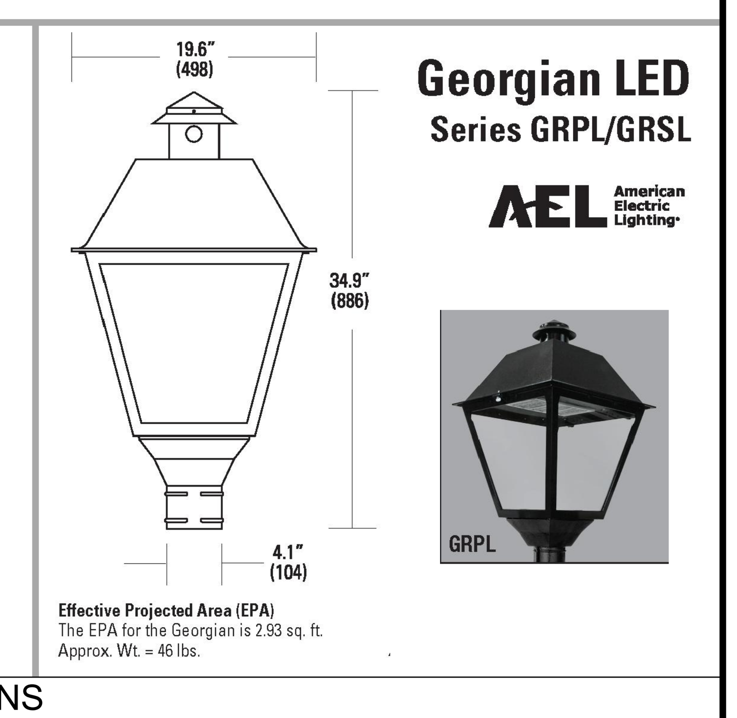
17 LIGHT POLE FOUNDATION
NOT TO SCALE



DIMENSION DATA

Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Optional Arm Length [1]	Weight with Arm (lbs.)	EPA with Arm [2] (Sq. Ft.)
1-4	15-1/2" (394mm)	7" (178mm)	10" (254mm)	33 (15.0 kgs.)	0.96
5-6	21-5/8" (549mm)	7" (178mm)	10" (254mm)	44 (20.0 kgs.)	1.00
7-8	27-5/8" (702mm)	7" (178mm)	13" (330mm)	54 (24.5 kgs.)	1.07
9-10	33-3/4" (857mm)	7" (178mm)	16" (406mm)	63 (28.6 kgs.)	1.12





Effective Projected Area (EPA)
The EPA for the Georgian is 2.93 sq. ft.
Approx. Wt. = 46 lbs.

18 SITE LIGHTING SPECIFICATIONS
NOT TO SCALE

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 076556

NOT FOR CONSTRUCTION

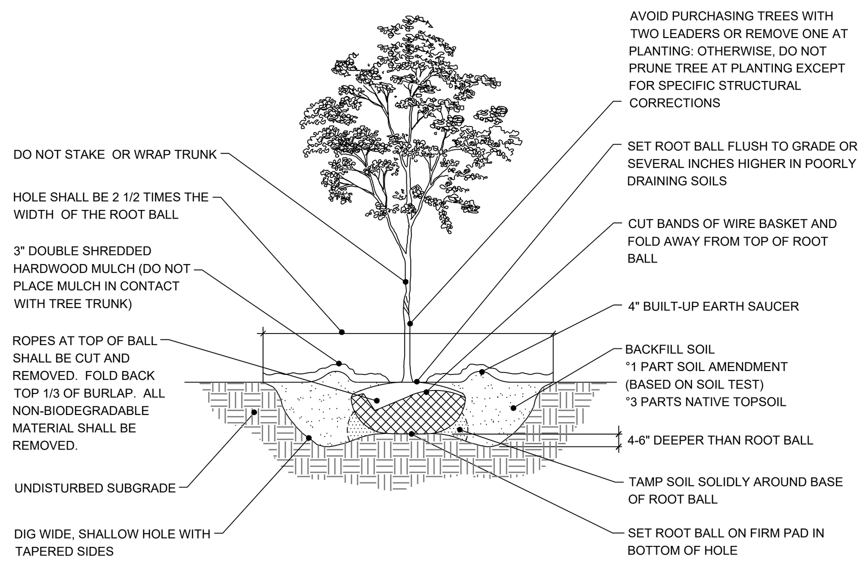
PROJECT No: 140012
DRAWN BY: B. NAGENGAST / M. RIVEZZI
CHECKED BY: R. WHITMORE
CAD I.D. #: 24-25-26_DT_140012

LANDCORE Engineering Consultants, P.C.
PHILADELPHIA, PA — 8614 MONTGOMERY AVENUE, WYNDMOOR, PA 19038, PHONE 215-836-2510
LANCASTER, PA — 1853 WILLIAM PENN WAY, P.O. BOX 10368, LANCASTER, PA 17605-0368, PHONE 717-672-0614
PITTSBURGH, PA — 201 PENN CENTER BOULEVARD, SUITE 400, PITTSBURGH, PA 15235, PHONE 412-253-6569
PRINCETON, NJ — 100 OVERLOOK CENTER, SUITE 200, PRINCETON, NJ 08540, PHONE 609-920-0268

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: CONSTRUCTION DETAILS

SCALE: (H) AS NOTED (V) .
DATE: 2017 - 12 - 22
SHEET: DT1
REV. No: 0



NOTES:

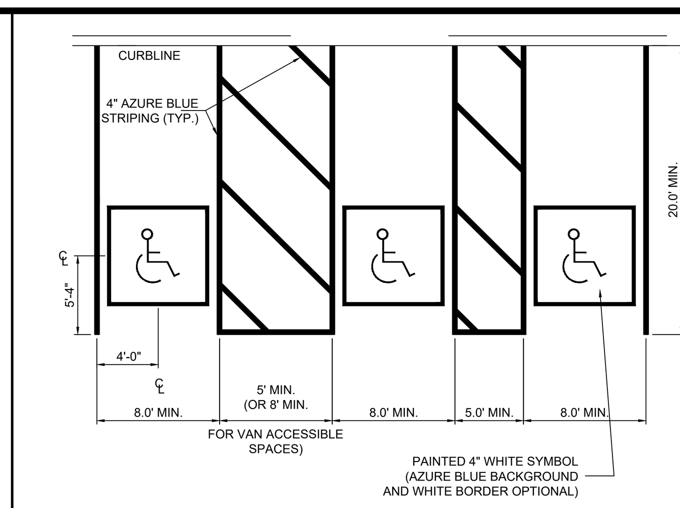
1. FOR CONTAINER-GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER

2. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.

3. SOIL AMENDMENTS:
°MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM

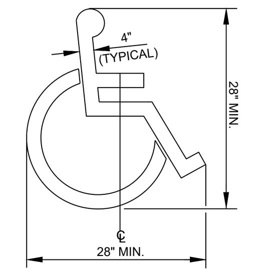
°MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX

L1 **DECIDUOUS TREE PLANTING**
NOT TO SCALE



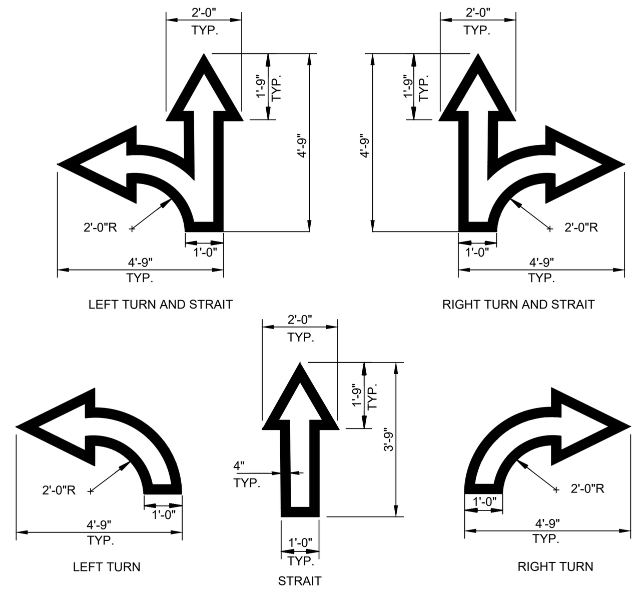
NOTES:
1. CURB RAMPS MAY NOT EXTEND INTO ANY PORTION OF THE PARKING SPACE OR ASSOCIATED STRIPED ISLAND.
2. CURB RAMPS, PAVEMENT MARKINGS, & APPLICABLE SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST A.D.A. ACCESSIBILITY GUIDELINES.
3. SLOPE, CROSS SLOPE OF ACCESSIBLE SPACES NOT TO EXCEED 2% IN ANY DIRECTION

01 **RESERVED PARKING STALL**
NOT TO SCALE



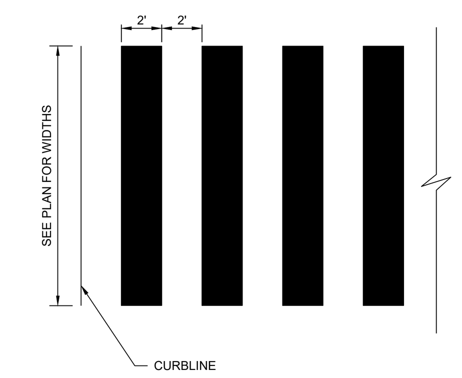
REFER TO RESERVED PARKING STALL DETAIL FOR SYMBOL LOCATION

02 **ADA PARKING SYMBOL**
NOT TO SCALE



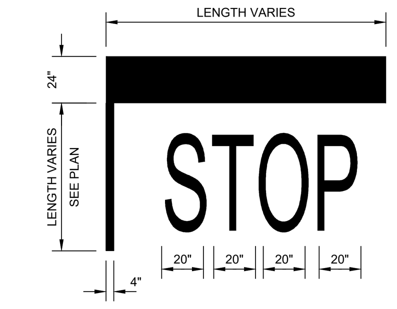
NOTE:
ALL TRAFFIC FLOW ARROWS TO BE REFLECTIVE YELLOW PAINT.

03 **TRAFFIC ARROWS**
NOT TO SCALE

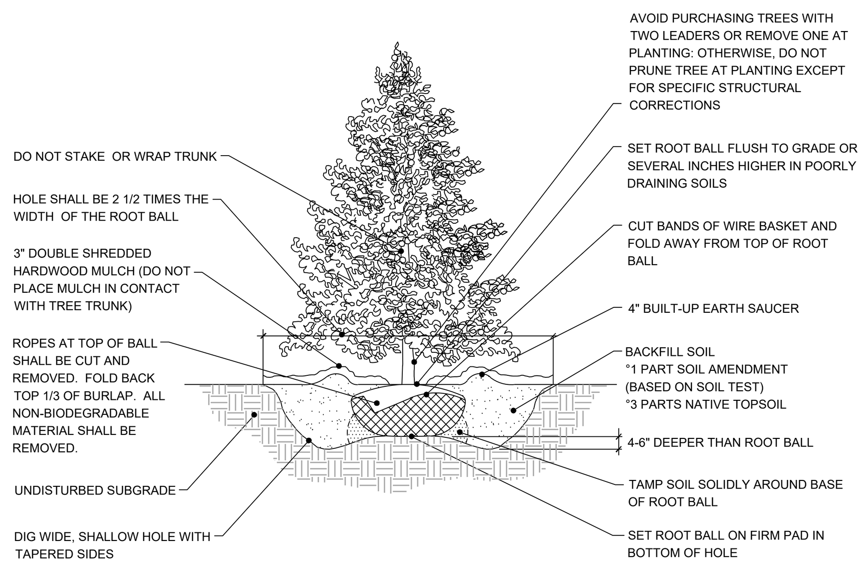


NOTE:
1. ALL CROSSWALKS AND NEUTRAL AREAS SHALL BE PAINTED WHITE. SPACES AND LINES SHALL BE OF EQUAL THICKNESS.
2. MAX. CROSS SLOPE NOT TO EXCEED 2%; MAX. RUNNING SLOPE NOT TO EXCEED 5%.

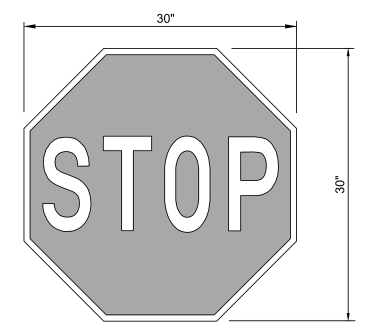
04 **CROSSWALK MARKING**
NOT TO SCALE



05 **STOP MARKING**
NOT TO SCALE

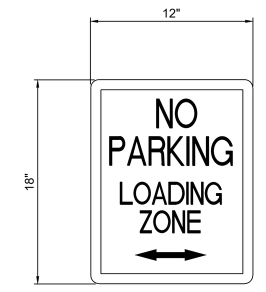


L2 **EVERGREEN TREE PLANTING**
NOT TO SCALE



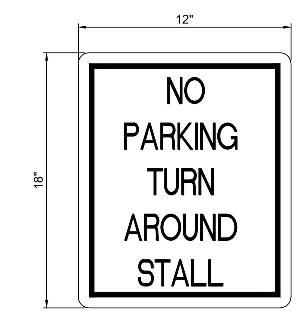
WHITE LEGEND RED BACKGROUND
R1-1

06 **STOP SIGN**
NOT TO SCALE



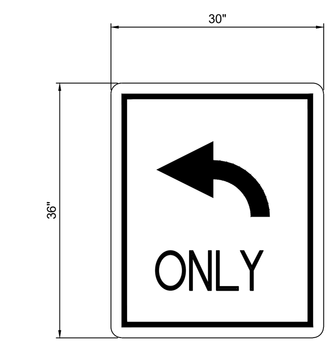
BLACK LEGEND ON WHITE BACKGROUND

07 **NO PARKING LOADING ZONE SIGN**
NOT TO SCALE



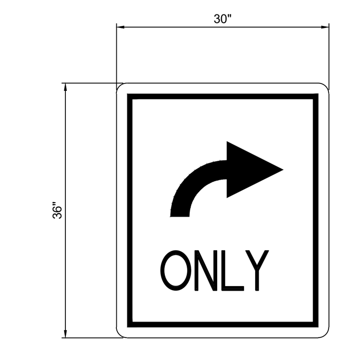
BLACK LEGEND ON WHITE BACKGROUND

08 **NO PARKING TURN AROUND STALL SIGN**
NOT TO SCALE



BLACK LEGEND ON WHITE BACKGROUND
R3-5

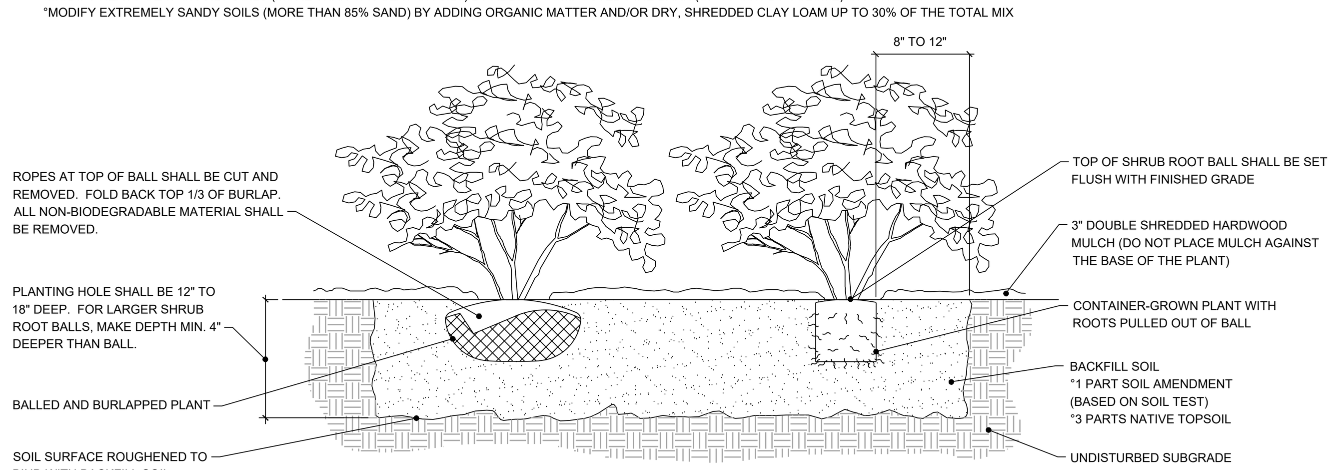
09 **LEFT TURN ONLY SIGN**
NOT TO SCALE



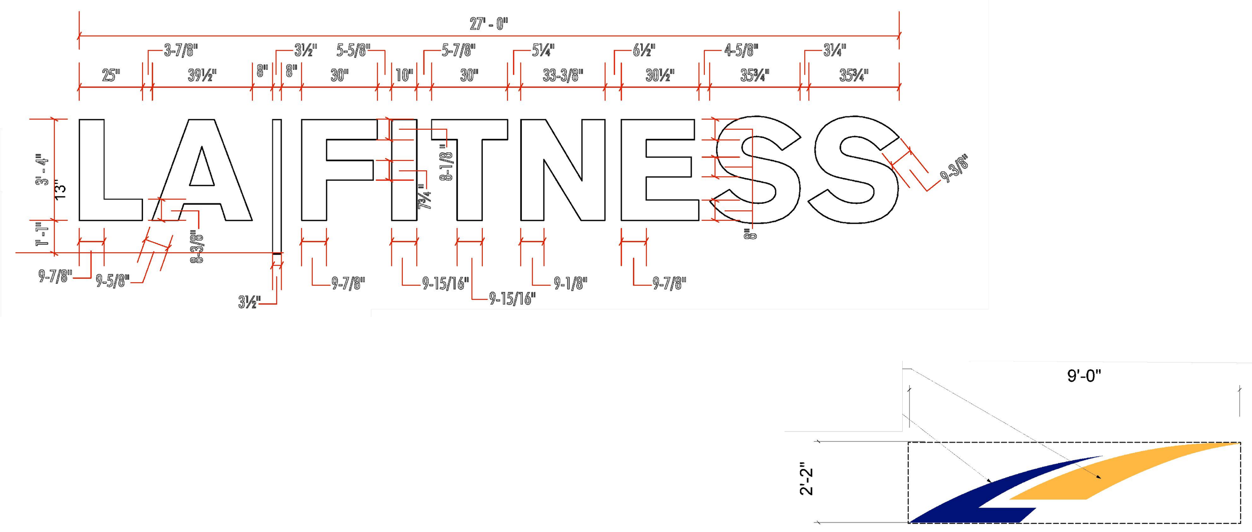
BLACK LEGEND ON WHITE BACKGROUND
R3-5

10 **RIGHT TURN ONLY SIGN**
NOT TO SCALE

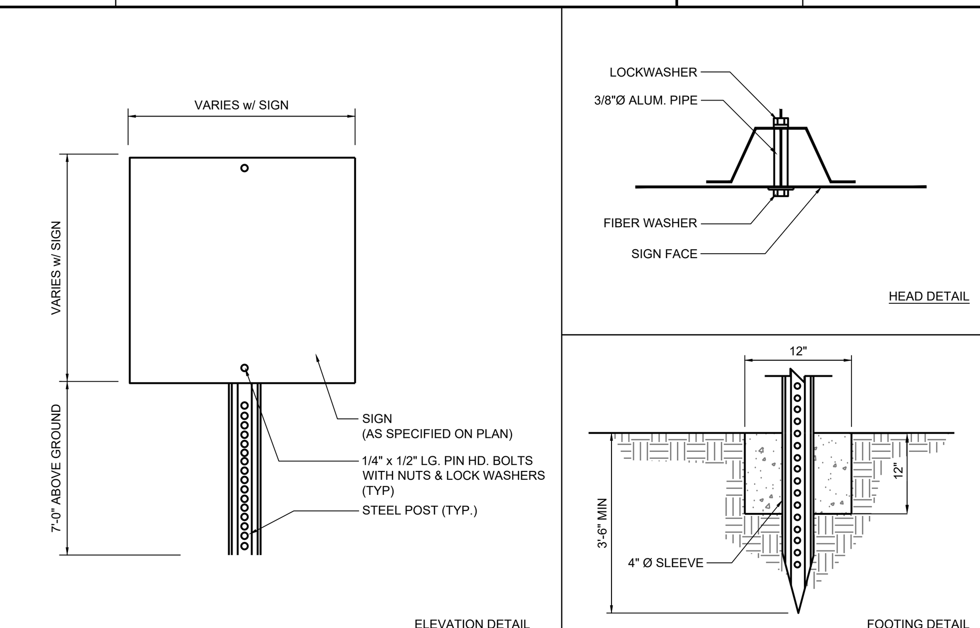
NOTES:
1. FOR CONTAINER-GROWN SHRUBS, USE FINGERS OR SMALL HAND TOOL TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE SHRUB ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
3. SOIL AMENDMENTS:
°MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
°MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX



L3 **SHRUB PLANTING**
NOT TO SCALE

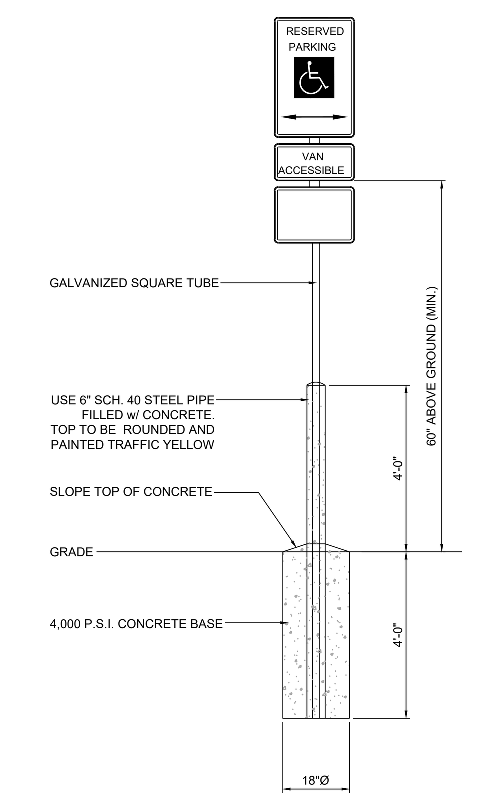


11 **LA FITNESS BUILDING MOUNTED SIGNS**
NOT TO SCALE



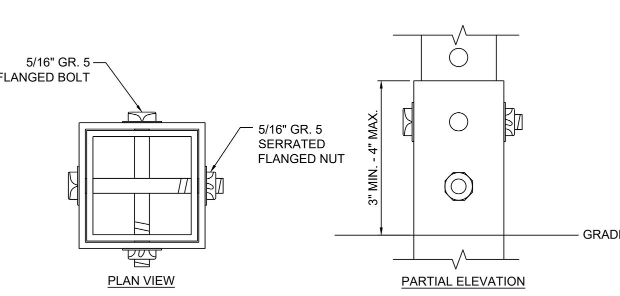
NOTES
1. ALL POSTS SHALL BE OF ADEQUATE LENGTH TO MEET THE REQUIREMENTS FOR ERECTION AS STATED IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS".
2. ONE PIECE STEEL POST SHALL BE EMBEDDED 3'-6" MAX.
3. ALL STEEL POSTS AND BRACKETS SHALL BE CUT, BENT AND HOLES PUNCHED AND DRILLED BEFORE GALVANIZING. GALVANIZING SHALL BE IN CONFORMANCE WITH THE CURRENT A.S.T.M. SPECIFICATIONS A 123.
4. POSTS MAY BE STEEL OR 2 PIECE STEEL U-POST IN CONFORMANCE WITH THE NOTES BELOW.
5. BOLTS SHALL NOT PROTRUDE MORE THAN 3/4" BEYOND THE NUT WHEN TIGHT BUT SHALL ENGAGE ALL THREADS IN THE NUT.
6. THE MIN. VERTICAL CLEARANCE REQUIREMENTS FOR SIGNS ARE: EDGE OF PAVEMENT TO BOTTOM OF SIGN AS PER SECTION 2A-23 OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS". GROUNDLINE TO BOTTOM OF SIGN SHALL BE 7 FEET MIN. FOR SINGLE POST INSTALLATION. THE MIN. DISTANCE FROM GROUNDLINE TO THE TOP OF SIGN MUST BE 9 FEET.
7. PERMANENT SIGN SUPPORTS SHALL NOT BE INSTALLED ON SLOPES GREATER THAN 10:1, UNLESS BEHIND A TRAFFIC BARRIER, AND THE SLOPE SHALL EXTEND A MIN. OF 3'-0" BEYOND THE OUTSIDE EDGE OF SIGN (SEE GRADING DETAIL FOR SLOPE TREATMENT)
8. EXTRUDED ALUM. SIGN PANELS ARE NOT PERMITTED FOR USE WITH U-POST SIGN SUPPORTS.

12 **TYPICAL SIGN POST**
NOT TO SCALE



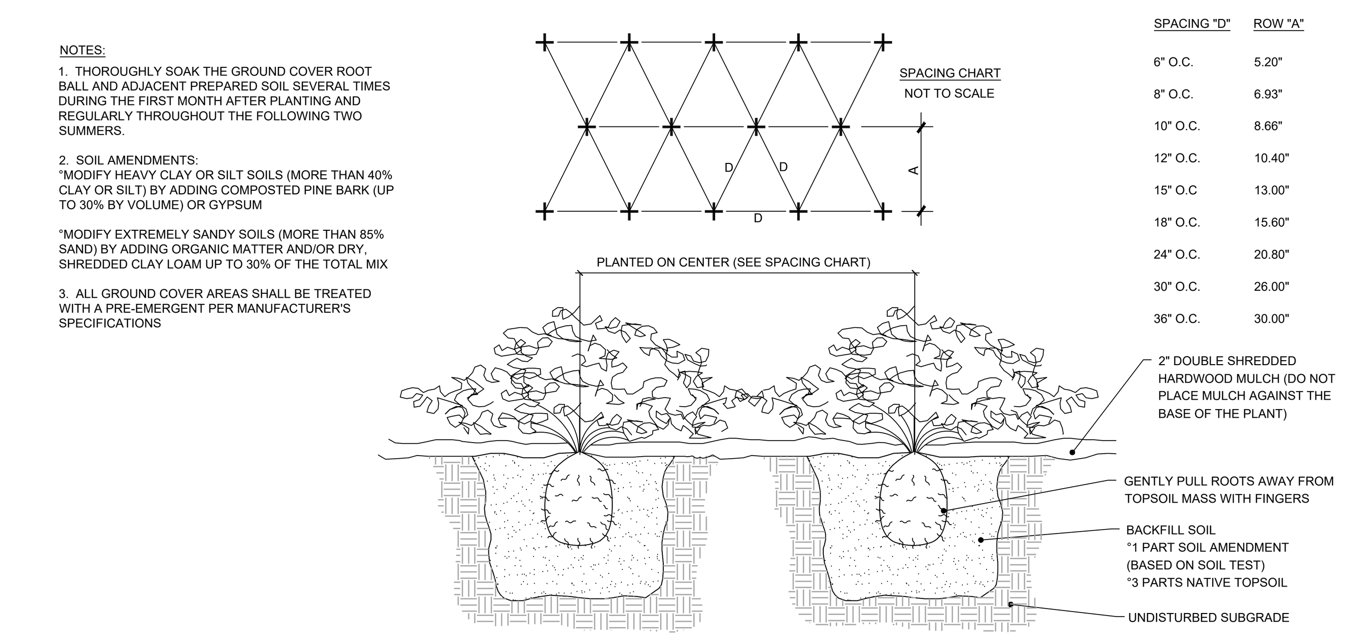
NOTES:
1. ALL SIGNS SHALL COMPLY WITH U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES", LOCAL CODES AND AS SPECIFIED. MOUNT SIGNS TO POST IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. GALVANIZED SQUARE TUBE

POST TUBES - 2"x2"x3/16" 14ga
POST TUBE SHALL MEET ASTM A1011 GRADE 50.
POST TUBE GALVANIZED AS PER ASTM A653 GRADE 90.



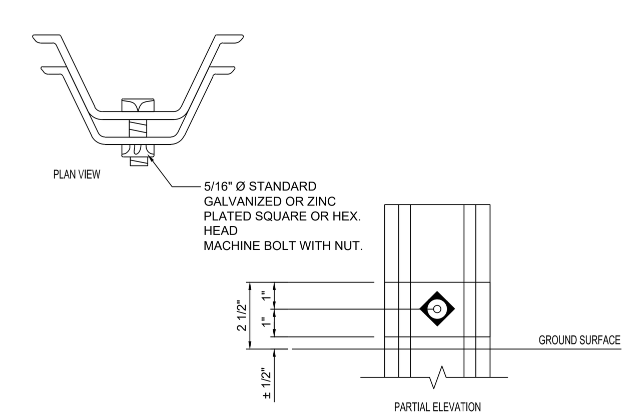
SQUARE TUBE BREAK AWAY POST

16 **BOLLARD MOUNTED SIGN POST**
NOT TO SCALE

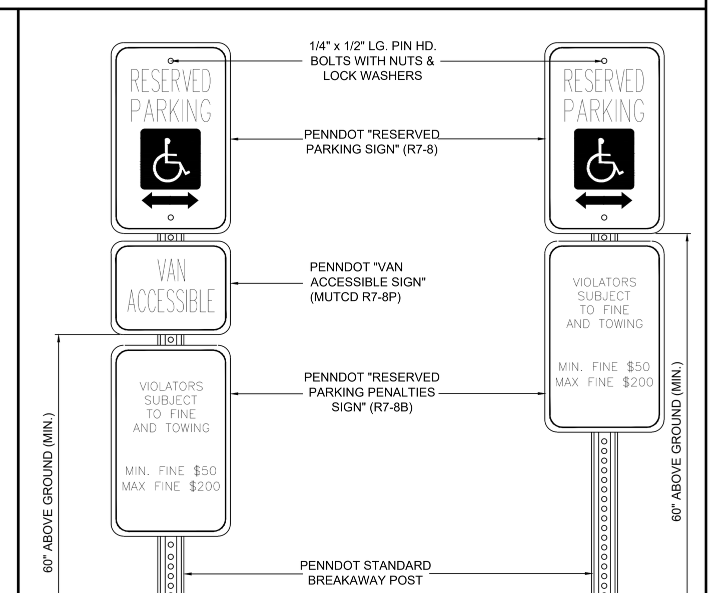


L4 **PERENNIAL PLANTING**
NOT TO SCALE

13 **GIANT BUILDING MOUNTED SIGN**
NOT TO SCALE



14 **BREAK-AWAY CHANNEL POST**
NOT TO SCALE



15 **RESERVED PARKING SIGN**
NOT TO SCALE

1. PRIOR TO SEEDING, MIX TOP 6" LAYER OF TOPSOIL WITH FERTILIZER AND LIME. 10-20-10 FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 S.F. LIME SHALL BE APPLIED IN ACCORDANCE WITH THE FOLLOWING CHART:

SOIL TEXTURE	TONS/ACRE	LBS/1,000 S.F.
CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	3	135
SANDY LOAM, LOAM, SILT LOAM	2	90
LOAMY SAND, SAND	1	45

ABOVE APPLICATION RATES FOR FERTILIZER AND LIME ARE STANDARD RATES AND SHALL BE ADJUSTED BASED ON SITE SPECIFIC SOIL TESTS.

2. TOPSOIL SHALL BE TILLED, FINE GRADED, AND RAKED FREE OF ALL DEBRIS LARGER THAN 1" IN DIAMETER. ALL LAWN AREAS SHALL BE SLOPED TO DRAIN OR PER THE APPROVED GRADING PLAN.

3. CONSULT MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS AND IMPLEMENT AS REQUIRED PRIOR TO APPLICATION OF SEED.

4. GENERAL LOW MAINTENANCE SEED MIX (#8)

SEED MIXTURE	LBS/ACRE	LBS/1,000 S.F.
FINE FESCUE (BLEND) HARD FESCUE STRONG CREEPING RED FESCUE	75	2.1
KENTUCKY BLUEGRASS	10	.25
PERENNIAL RYEGRASS	10	.25
WHITE CLOVER	5	.10

OPTIMAL PLANTING DATES
ZONE 5B & 6A = 3/15-5/31, 8/1-10/1
ZONE 6B = 3/1-4/30, 8/15-10/15
ZONE 7A & 7B = 2/1-4/30, 8/15-10/30

MAINTENANCE LEVEL
(B) FREQUENT MOWING (4-7 DAYS), OCCASIONAL FERTILIZATION, LIME AND WEED CONTROL
(C) PERIODIC MOWING (7-14 DAYS), OCCASIONAL FERTILIZATION AND LIME
(D) INFREQUENT OR NO MOWING, FERTILIZATION AND LIME THE FIRST YEAR OF ESTABLISHMENT

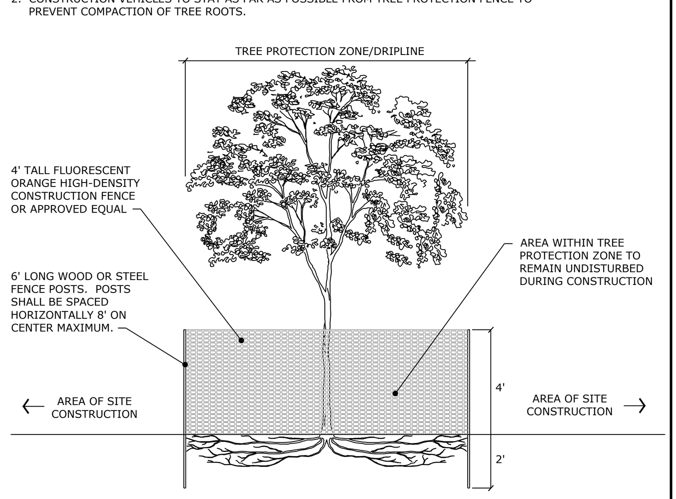
5. SEED SHALL BE APPLIED IN TWO DIRECTIONS AT RIGHT ANGLES TO EACH OTHER. ONCE APPLIED, FIRM THE SOIL WITH A CORRUGATED LAWN ROLLER TO PROMOTE SEED-TO-SOIL CONTACT.

6. APPLY UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR SALT HAY TO ALL SEEDED AREAS AT THE RATE OF 1 1/2 - 2 TONS PER ACRE OR 70-90 POUNDS PER 1,000 S.F. SPREAD MULCH SO THAT APPROXIMATELY 85% OF THE SOIL SURFACE IS COVERED. ANCHORING OF MULCH SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE ACCOMPLISHED BY ONE OF THE FOLLOWING METHODS: PEG AND TWINE, MULCH NETTING, OR LIQUID MULCH-BINDER.

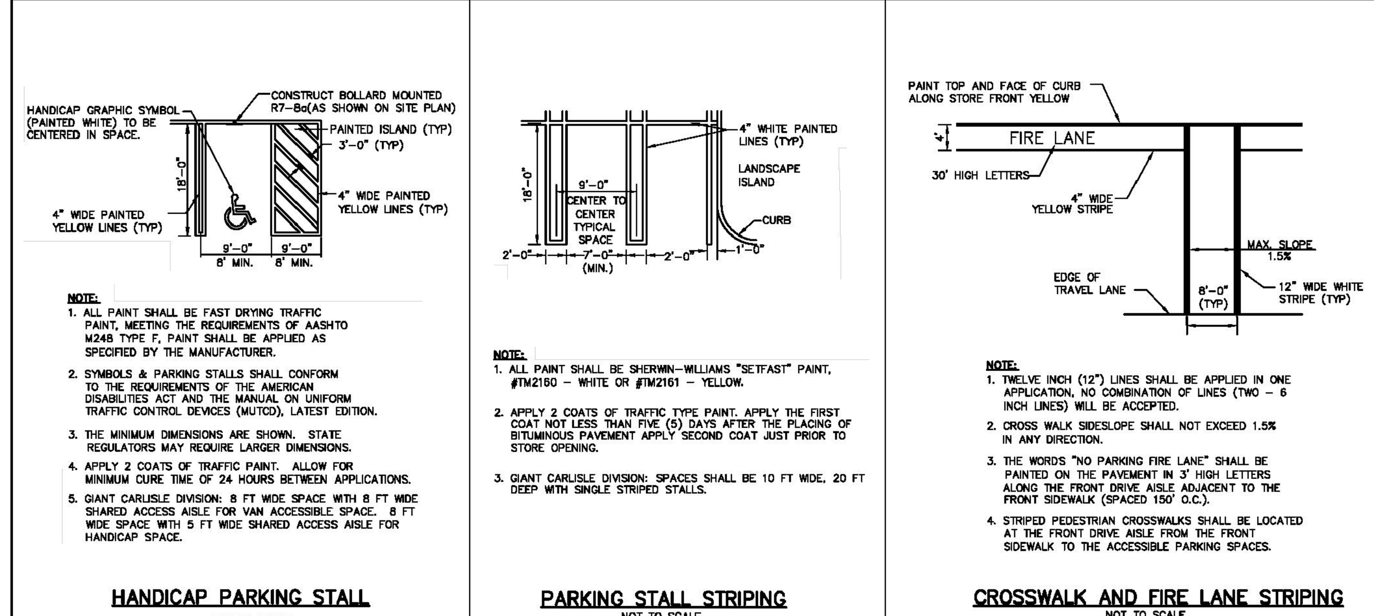
7. IRRIGATE NEWLY SEEDED AREAS WITH A MINIMUM OF 1/4 INCH OF WATER TWICE A DAY (NOT DURING PERIODS OF INTENSE SUN) UNTIL VEGETATION IS WELL ESTABLISHED.

L5 **SEED SPECIFICATION**

NOTES:
1. TREE PROTECTION FENCE SHALL BE INSTALLED TO FOLLOW TREE CANOPY DRIP LINE OR PROPOSED LIMITS OF DISTURBANCE.
2. CONSTRUCTION VEHICLES TO STAY AS FAR AS POSSIBLE FROM TREE PROTECTION FENCE TO PREVENT COMPACTION OF TREE ROOTS.



L6 **TREE PROTECTION FENCE DETAIL**
NOT TO SCALE

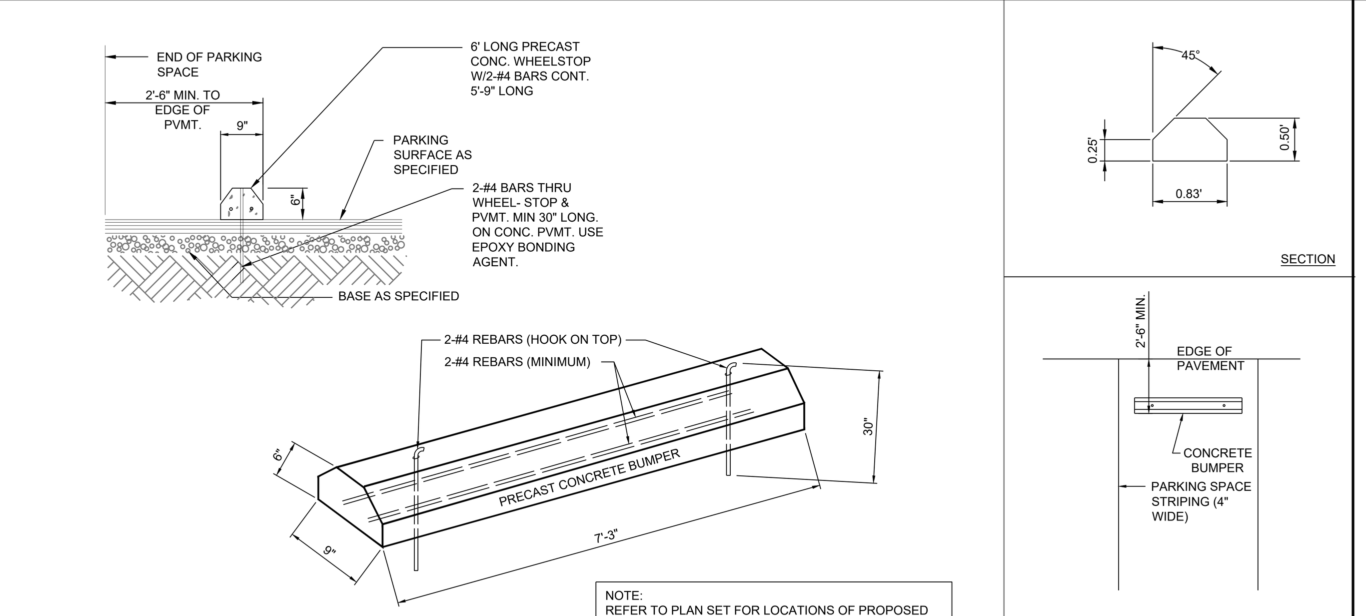


HANDICAP PARKING STALL
NOT TO SCALE

PARKING STALL STRIPING
NOT TO SCALE

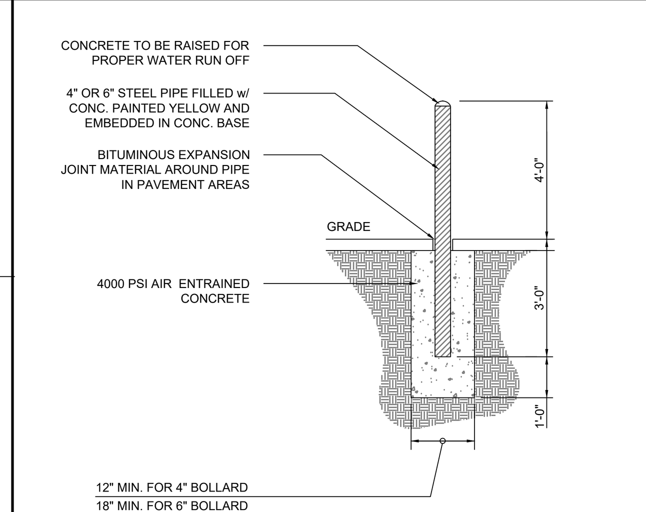
CROSSWALK AND FIRE LANE STRIPING
NOT TO SCALE

17 **GIANT SPECIFIC PAVEMENT MARKINGS**
NOT TO SCALE



NOTE:
REFER TO PLAN SET FOR LOCATIONS OF PROPOSED WHEELSTOPS.

18 **CONCRETE WHEELSTOP**
NOT TO SCALE



12" MIN. FOR 4" BOLLARD
18" MIN. FOR 6" BOLLARD

NOTE:
1. BOLLARDS REQ'D AS AS DEPICTED ON SITE PLAN DRAWINGS. TYPICALLY LOCATED AT BLDG. CORNERS, TRANSFORMERS, FIRE HYDRANTS, EXTERIOR WATER METER, GAS METER, AND FIRE DEPARTMENT CONNECTIONS.
2. BOLLARD MUST RESIST A FORCE OF 12,000 POUNDS APPLIED 30" ABOVE THE DRIVING SURFACE.

19 **CONC. FILLED STEEL BOLLARD**
NOT TO SCALE

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 076556

NOT FOR CONSTRUCTION

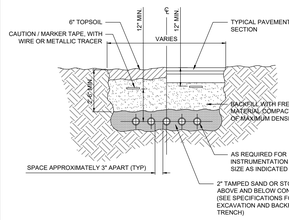
PROJECT No: 140012
DRAWN BY: B. NAGENGAST / M. RIVEZZI
CHECKED BY: R. WHITMORE
CAD I.D. #: 24-25-26_DT_140012

LANDCORE Engineering Consultants, P.C.
PHILADELPHIA, PA — 8614 MONTGOMERY AVENUE, WYNDMOOR, PA 19038, PHONE 215-836-2510
LANCASTER, PA — 1853 WILLIAM PENN WAY, P.O. BOX 10368, LANCASTER, PA 17605-0368, PHONE 717-672-0614
PITTSBURGH, PA — 201 PENN CENTER BOULEVARD, SUITE 400, PITTSBURGH, PA 15235, PHONE 412-253-6569
PRINCETON, NJ — 100 OVERLOOK CENTER, SUITE 200, PRINCETON, NJ 08540, PHONE 609-920-0268

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY; PENNSYLVANIA

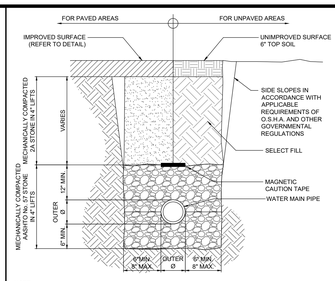
TITLE: CONSTRUCTION DETAILS

SCALE: (H) AS NOTED (V) .
DATE: 2017 - 12 - 22
SHEET: DT2
REV. No: 0



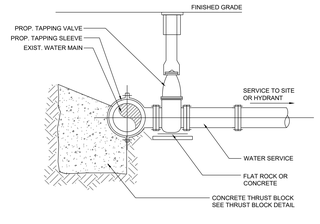
EXCAVATIONS IN EXISTING PAVED ROADWAYS SHALL BE COORDINATED WITH THE LOCAL PERMITTING AGENCY, AND ALL EXCAVATION SHALL BE PAVED WITH TEMPORARY BITUMINOUS PAVEMENT FROM THE DATE OF ORIGINAL EXCAVATION UNTIL PERMANENT PAVEMENT IS INSTALLED. (MINIMUM = 90 DAYS, MAXIMUM = 120 DAYS)

01 TYPICAL UTILITY TRENCH
NOT TO SCALE



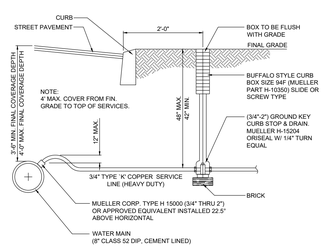
NOTE:
ELECTRONICALLY LOCATABLE BRIGHTLY COLORED TAPE DISPLAYING THE PRINTED NOTATION "WATERLINE" SHALL BE LAID BETWEEN BACKFILL LIFTS OVER THE PIPE TWO FEET ABOVE THE PIPE. IN NO EVENT SHALL THE TAPE BE MORE THAN FOUR FEET BELOW THE FINISHED GROUND SURFACE. TAPE SHALL BE 2" IN WIDTH.

02 WATER MAIN BEDDING & PIPE ZONE
NOT TO SCALE



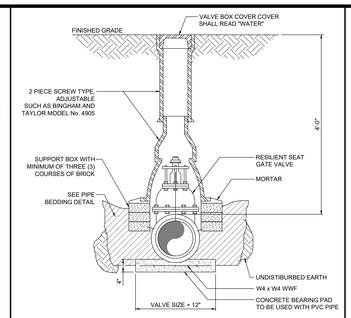
NOTE:
WET TAP AND VALVE MANUFACTURER SHALL BE DETERMINED BY GOVERNING MUA OR WATER SUPPLIER.

03 WATER SERVICE WET TAP
NOT TO SCALE

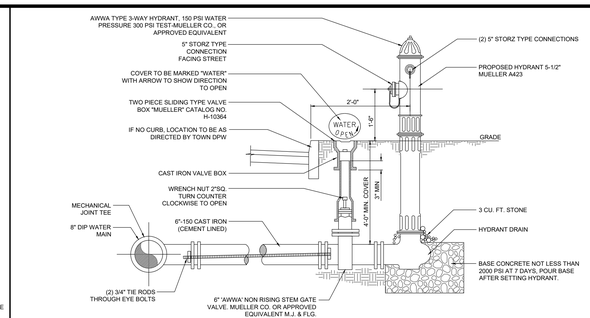


NOTE:
MODIFIED 2A STONE (8" LIFTS) SHALL BE PLACED WHEN BACKFILLING WATER SERVICE CONNECTION FROM MAIN TO BEHIND CURB.

04 DOMESTIC WATER CONNECTION
NOT TO SCALE

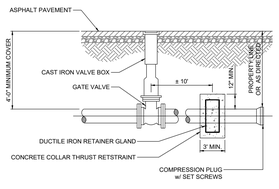


05 GATE VALVE
NOT TO SCALE

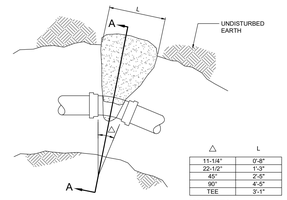


06 FIRE HYDRANT and VALVE INSTALLATION
NOT TO SCALE

NOTES:
1. STUB OUT MAINS MUST BE HYDROSTATICALLY TESTED WITH THE REST OF THE MAIN.
2. IN LIEU OF SLIP-JOINT AND COMPRESSION PLUG, A MECHANICAL JOINT MAY BE USED WITH A MECHANICAL JOINT PLUG.



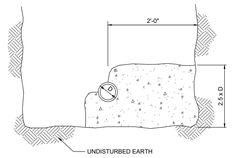
07 WATER MAIN STUB OUT
NOT TO SCALE



△	L
11-1/4°	0'-8"
22-1/2°	1'-3"
45°	2'-5"
90°	4'-5"
TEE	5'-1"

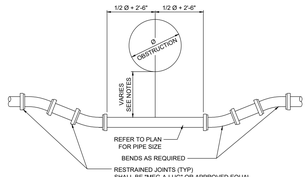
SPECIFICATIONS:
CONCRETE MINIMUM STRENGTH (4,000 P.S.I. @ 28 DAYS)

PLAN OF HORIZONTAL BEND



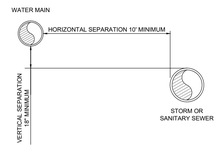
SECTION A-A

08 WATER SERVICE THRUST BLOCKING
NOT TO SCALE



NOTES:
1. ALL PIPE SHALL BE DUCTILE IRON CLASS 52 RESTRAINED JOINT.
2. FOR CROSSING UNDER EXISTING PIPE OR OBSTRUCTIONS A MINIMUM OF 18" CLEARANCE SHALL BE MAINTAINED FROM THE BOTTOM OF THE EXISTING PIPE TO THE TOP OF THE PROPOSED WATER MAIN.
3. FOR CROSSING UNDER EXISTING PIPE THE CONTRACTOR MAY ELIMINATE FITTINGS, IF DEPTH CAN BE OBTAINED BY DEFLECTING PIPE JOINTS WITHIN ALLOWABLE LIMITS AND IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

09 WATER INSTALLATION UNDER OBSTRUCTION
NOT TO SCALE

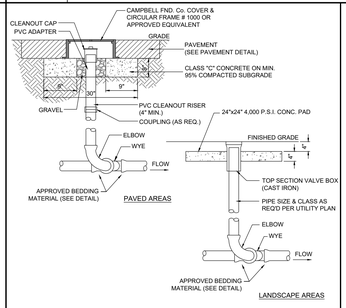


NOTES:

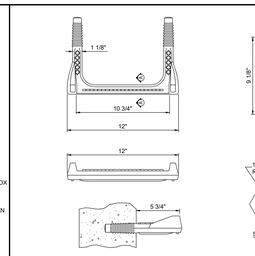
1. WHEN THE HORIZONTAL SEPARATION OF THE WATER MAIN AND SEWER LINE IS LESS THAN 10', THE VERTICAL SEPARATION BETWEEN THE TOP (CROWN) OF THE SEWER LINE AND THE BOTTOM (INVERT) OF THE WATER MAIN SHALL BE AT LEAST 18". WATERLINE SHALL BE ENCASED IN CONCRETE WHERE SEWER / WATERLINE CROSSINGS OCCUR AND, WHERE THE CONDITIONS PREVENT AN 18" VERTICAL SEPARATION.

2. NO OTHER UNDERGROUND UTILITIES, SUCH AS GAS, ELECTRIC, TELEPHONE, OR CABLE, SHALL BE PLACED ABOVE THE WATERLINE OR WITHIN THREE FEET OF EACH SIDE OF THE WATERLINE.

10 UTILITY SEPARATION
NOT TO SCALE

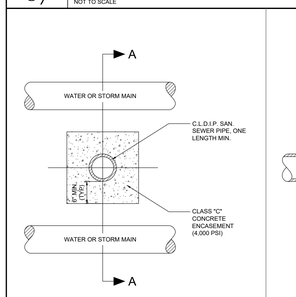


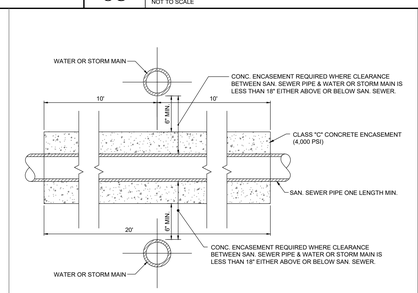
11 SANITARY CLEANOUTS
NOT TO SCALE



NOTES:
1. PLACE LADDER BARS AT 12" O.C. MAX.
2. MAX. DISTANCE FROM BOTTOM OF STRUCTURE TO LOWEST LADDER BAR IS 12".
3. SPECIFICATIONS: MANHOLE STEPS SHALL BE ANODIZED ALUMINUM OR APPROVED MATERIAL.

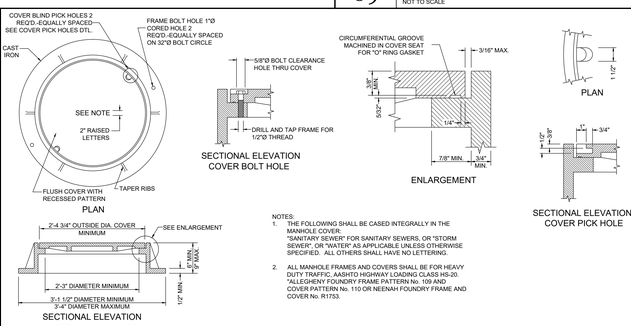
12 LADDER RUNGS
NOT TO SCALE





SECTION A-A

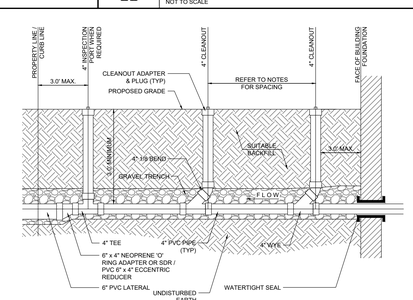
13 SANITARY SEWER CONCRETE ENCASEMENT
NOT TO SCALE



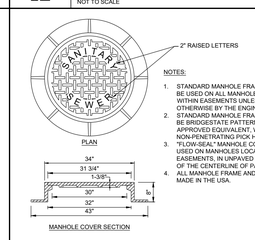
NOTES:
1. THE FOLLOWING SHALL BE CASED INTEGRALLY IN THE MANHOLE COVER:
"SANITARY SEWER" FOR SANITARY SEWERS, OR "STORM SEWER", OR "WATER" AS APPLICABLE UNLESS OTHERWISE SPECIFIED. ALL OTHERS SHALL HAVE NO LETTERING.
2. ALL MANHOLE FRAMES AND COVERS SHALL BE FOR HEAVY DUTY TRAFFIC, AASHTO HIGHWAY LOADING CLASS HS-20. "ALLEGHENY FOUNDRY FRAME PATTERN No. 109 AND COVER PATTERN No. 110 OR NEENAH FOUNDRY FRAME AND COVER No. R1753.

14 MANHOLE FRAME & COVER
NOT TO SCALE

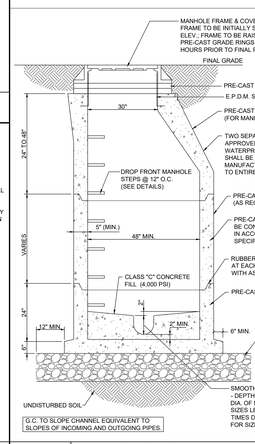
NOTES:
1. CONSTRUCTION SHALL COMPLY WITH THE BOCA INTERNATIONAL PLUMBING CODE.
2. IF BENDS ARE NECESSARY, THEY SHALL BE A STANDARD MANUFACTURED BEND PRECEDED BY THE INSTALLATION OF A CLEANOUT.
3. ALL CONNECTIONS AND FITTINGS SHALL BE SEALED WITH EITHER FLEXIBLE ELASTOMERIC SEAL JOINTS OR SOLVENT CEMENT JOINTS.
4. BUILDING SEWER PIPE MAY BE 4" OR 6" (4" SHOWN). THE MINIMUM SLOPE FOR A 4" PIPE SHALL BE 1/4" PER FOOT. THE MINIMUM SLOPE FOR 6" PIPE SHALL BE 1/8" PER FOOT.
5. THE SEWER LINE SHALL BE BEDDED IN A MINIMUM OF TWO (2) INCHES OF AASHTO No. 8 AGGREGATE AND COMPLETELY BACKFILLED TO SIX INCHES ABOVE THE TOP OF THE PIPE WITH THE SAME MATERIAL. THE REMAINING TRENCH MAY BE BACKFILLED WITH SUITABLE EXISTING MATERIAL REMOVED FROM THE TRENCH EXCAVATION.
6. ALL INSTALLATIONS SHALL HAVE AT LEAST ONE (1) CLEANOUT. THIS CLEANOUT SHALL BE INSTALLED IMMEDIATELY AFTER THE SEWER EXITS THE BUILDING. ADDITIONAL CLEANOUTS SHALL BE INSTALLED AT INTERVALS OF 50 FEET FOR 4" PIPE, 100 FEET FOR 6" PIPE AND AT ALL CHANGES OF DIRECTION.
7. THE INSPECTION PORT SHALL BE REQUIRED FOR COMMERCIAL AND INDUSTRIAL LATERALS.
8. CLEANOUTS AND INSPECTION PORTS PLACED WITHIN PAVED AREAS SHALL BE PROTECTED FROM VEHICULAR DAMAGE BY CONSTRUCTING CAST IRON OR DUCTILE IRON CLEANOUT COVERS SUPPORTED ON A CONCRETE SLAB.



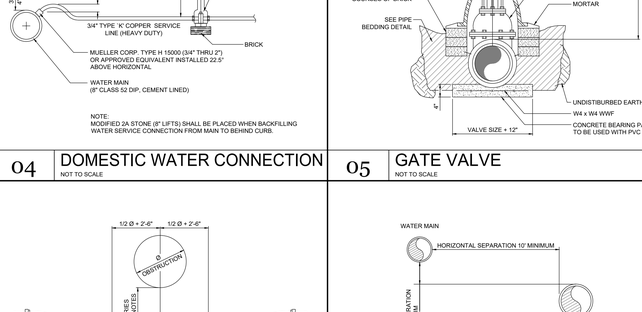
15 TYPICAL SANITARY SERVICE CONNECTION
NOT TO SCALE



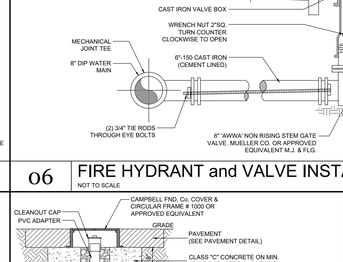
NOTES:
1. STANDARD MANHOLE FRAMES & COVERS SHALL BE USED ON ALL MANHOLES NOT LOCATED WITHIN EASEMENTS UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
2. STANDARD MANHOLE FRAME & COVER SHALL BE BRIDGESTATE PATTERN #1012B, OR APPROVED EQUIVALENT, WITH NON-PENETRATING PICK HOLES.
3. "FLOW-SEAL" MANHOLE COVERS SHALL BE USED ON MANHOLES LOCATED WITHIN EASEMENTS, IN UNPAVED AREAS, AND OUTSIDE OF THE CENTERLINE OF PAVED ROADS.
4. ALL MANHOLE FRAME AND COVERS SHALL BE MADE IN THE USA.



17 PRE-CAST SANITARY MANHOLE
NOT TO SCALE

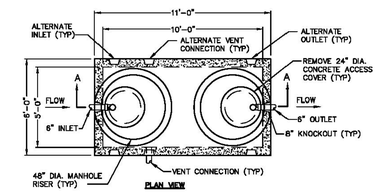


SECTION A-A



EXCAVATIONS IN EXISTING PAVED ROADWAYS SHALL BE COORDINATED WITH THE LOCAL PERMITTING AGENCY, AND ALL EXCAVATION SHALL BE PAVED WITH TEMPORARY BITUMINOUS PAVEMENT FROM THE DATE OF ORIGINAL EXCAVATION UNTIL PERMANENT PAVEMENT IS INSTALLED. (MINIMUM = 90 DAYS, MAXIMUM = 120 DAYS)

16 TYPICAL SANITARY TRENCH
NOT TO SCALE

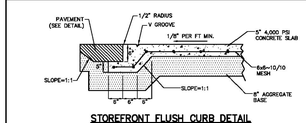


NOTES:

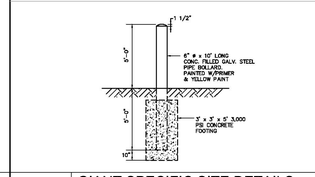
1. MANHOLE FRAME AND COVERS SHALL BE OF HEAVY DUTY DESIGN, GRAY IRON CASTING , AND SHALL HAVE THE WORD "GREASE TRAP" PLAINLY CAST INTO THE CENTER OF EACH OTHER IN 3 IN (MIN. HEIGHT) LETTERS.
2. ALL COMPONENTS, TANK, RISERS, MANHOLE FRAMES, & COVERS SHALL BE DESIGNED TO MEET ASTM C858 AND ACI 318 WITH AASHTO HS-20 LOADING.
3. ALL BAFFLE TEES SHALL BE PVC, AND FASTENED WITH STAINLESS STEEL HARDWARE.
4. FILL WITH WATER BEFORE REMOVAL OF DEWATERING MEASURES.
5. THE GREASE TRAP SHALL BE VENTED AS REQUIRED BY CODE.
6. CONCRETE – 5,000 PSI (MIN.) STRENGTH AT 28 DAYS.
7. STEEL REINFORCEMENT – ASTM A-615, GRADE 60.
8. COVER TO STEEL – 1" MINIMUM.
9. SEAL CONSTRUCTION JOINTS WITH DOUBLE LAYER OF 1" DIAMETER BUTYL RUBBER OR EQUIVALENT.

BOLLARD
NOT TO SCALE

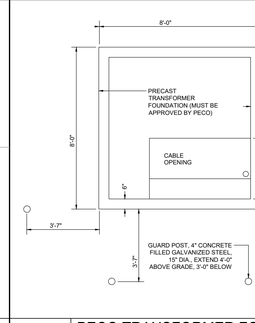
19 2,000 GALLON GREASE TRAP (GIANT)
NOT TO SCALE



STOREFRONT FLUSH CURB DETAIL
NOT TO SCALE



20 GIANT SPECIFIC SITE DETAILS
NOT TO SCALE



21 PECO TRANSFORMER FOUNDATION
NOT TO SCALE

REV.	DATE	COMMENT	BY

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 076556
NOT FOR CONSTRUCTION

PROJECT No: 140012
DRAWN BY: B. NAGENGAST / M. RIVEZZI
CHECKED BY: R. WHITMORE
CAD I.D. #: 24-25-26_DT_140012

LANDCORE Engineering Consultants, P.C.
PRINCETON NJ: 100 DEVELOPER CENTER 101 WOODSMAN DRIVE, SUITE 1A PRINCETON, NJ 08540 PHONE: 609.799.9000
PITTSBURGH PA: 1000 CORPORATE DRIVE, SUITE 300 PITTSBURGH, PA 15205 PHONE: 412.922.9000
LANCASTER PA: 1950 LAND STREET, SUITE 100 LANCASTER, PA 17601-4088 PHONE: 717.735.9111

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA
TITLE: CONSTRUCTION DETAILS

SCALE: (H) AS NOTED (V) -
DATE: 2017 - 12 - 22
SHEET: DT3
REV. No: 0

PROPOSED OFFICE / RETAIL BUILDING
BUILDING FOOTPRINT 40,000 SF
TOTAL OFFICE / RETAIL AREA 80,000 SF
(2 STORIES w/ PARKING UNDER BUILDING)
(105 STALLS)

LA|FITNESS
PROPOSED FITNESS CENTER
34,088 SF

GIANT
PROPOSED SUPERMARKET
74K PROTOTYPE BUILDING (BFL AUSA)
72,564 SF FLOOR AREA
1,980 SF MEZZANINE
74,544 SF TOTAL BUILDING AREA

PROPOSED FUTURE PAD B 4,200 SF

PROPOSED FUTURE PAD A 5,500 SF

LOT 1

LOT 2
PROPOSED DEVELOPMENT BY OTHERS

LOT 3

EXISTING STRUCTURE TO REMAIN (2,337 SF)

EXISTING RESIDENCE TO REMAIN (2,405 SF)

LANGFORD RUN ROAD

RAMP WC-S1 (SR 8037)

WEST CHESTER PIKE (S.R. 0003)

DARTMOUTH LANE

VASSAR ROAD

L= 240.24'
R= 265.00'
CHD= S38°13'45"E
CHL= 232.10'
Δ= 51°56'36"

L= 264.65'
R= 380.00'
CHD= S44°14'55"E
CHL= 259.34'
Δ= 39°54'15"

L= 76.63'
R= 205.00'
CHD= S13°35'17"E
CHL= 76.18'
Δ= 21°25'02"

S72°12'27"E 210.46'
S64°12'02"E 193.40'
S24°17'48"E 155.74'
N74°37'23"W 40.01'
S74°37'23"E 16.54'
N60°58'50"W 85.49'
N13°22'27"E 148.63'
N13°22'27"E 102.25'
N13°22'27"E 30.00'

N48°27'38"E 750.04'

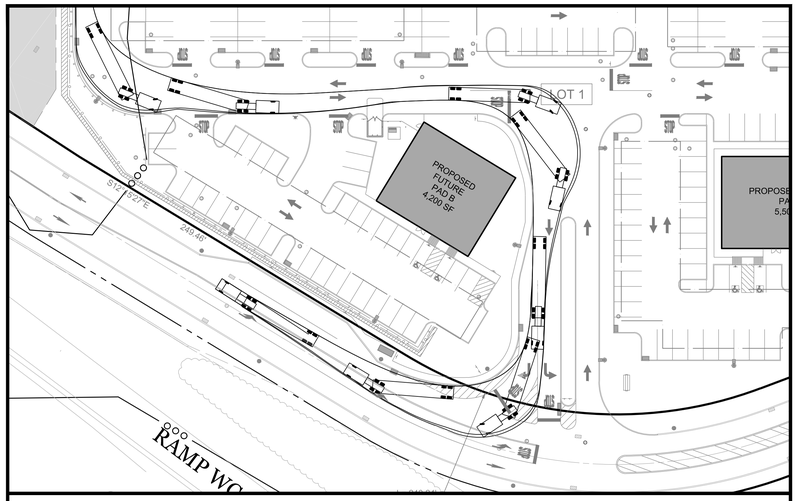
25-13-415
N/L CHARLES & J. SHOENBERGER
DBK 4276, PG 1

25-13-417
N/L FRANKLYN A. & SHIRLY SNYDERMAN DBK 2387, PG 972

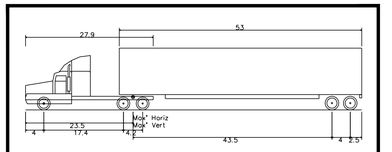
25-13-426
N/L MARPLE ASSOCIATES
DBK 403, PG 2096
ZONED RESIDENTIAL

25-20-40
N/L MARPLE ASSOCIATES
DBK 403, PG 1654

NO PARKING/TRUCK LANE



WB-67 TRUCK ALTERNATE RIGHT TURN EGRESS MOVMENT



WB-67 – Interstate Semi-Trailer

Overall Length	73.501ft
Overall Width	8.500ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	28.40°

WB-67 TRUCK DATA

MERIDIAN

KNOW WHAT'S BELOW.
CALL BEFORE YOU DIG
811
STATE of PENNSYLVANIA ONE CALL
DIAL 811 or 1-800-242-1776
WWW.PA1CALL.ORG

GRAPHIC SCALE
40 0 20 40 80 160
1 INCH = 40 FEET

REV.	DATE	COMMENT	BY

RYAN T. WHITMORE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. 076556

NOT FOR CONSTRUCTION

PROJECT No: 140012
DRAWN BY: B. INGENGAST / M. RWEZB
CHECKED BY: R. WHITMORE
CAD I.D. #: 27_TR_140012

LANDCORE
Engineering Consultants, P.C.
PRINCETON, NJ
1127 STERLING CENTER
1127 STERLING AVENUE
PRINCETON, NJ 08540
PHONE: 609-520-0008
LANCASTER
80 KUNDONDERRY AVENUE
80 KUNDONDERRY AVENUE
LANCASTER, PA 17603-5588
PHONE: 717-435-2470
PITTSBURGH
2000 ALLEGHENY WAY
2000 ALLEGHENY WAY
PITTSBURGH, PA 15235
PHONE: 412-243-0970

PROJECT: MARPLE ASSOCIATES, LP
PROPOSED MID-COUNTY SHOPPING CENTER
LANGFORD RUN ROAD
MARPLE TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA

TITLE: VEHICLE MOVEMENT PLAN
WB-67 TRUCK

SCALE: (H) AS NOTED
(V)

DATE: 2017 - 12 - 22

SHEET: TR

REV. No: 0