

**RECORD PLAN SUBMISSION  
FOR  
CHURCH WALK AND BRIDGE**



**Villanova University**

**SITUATED IN  
RADNOR TOWNSHIP,  
DELAWARE COUNTY, PENNSYLVANIA**

**PLAN INDEX**

RELATION	NO.	DESCRIPTION	START DATE	REVISION DATE
1 OF 20	C0.0	TITLE SHEET	MARCH 13, 2015	OCTOBER 6, 2015
2 OF 20	C1.1	EXISTING FEATURES / DEMOLITION PLAN	MARCH 13, 2015	OCTOBER 6, 2015
3 OF 20	C2.0	COMPOSITE SITE PLAN	MARCH 13, 2015	OCTOBER 6, 2015
4 OF 20	C2.1	SITE PLAN	MARCH 13, 2015	OCTOBER 6, 2015
5 OF 20	C3.1	GRADING PLAN	MARCH 13, 2015	OCTOBER 6, 2015
6 OF 20	C4.1	UTILITY PLAN	MARCH 13, 2015	OCTOBER 6, 2015
7 OF 20	C4.2	UTILITY PROFILES	MAY 26, 2015	OCTOBER 6, 2015
8 OF 20	C5.1	EROSION & SEDIMENTATION CONTROL PLAN	MARCH 13, 2015	OCTOBER 6, 2015
9 OF 20	C5.2	EROSION & SEDIMENTATION CONTROL DETAIL SHEET	MARCH 13, 2015	OCTOBER 6, 2015
10 OF 20	C5.3	EROSION & SEDIMENTATION CONTROL DETAIL SHEET	MARCH 13, 2015	OCTOBER 6, 2015
11 OF 20	C6.1	CONSTRUCTION DETAIL SHEET	MARCH 13, 2015	OCTOBER 6, 2015
12 OF 20	C6.2	CONSTRUCTION DETAIL SHEET	MARCH 13, 2015	OCTOBER 6, 2015
13 OF 20	C7.1	SITE LIGHTING PLAN	MARCH 13, 2015	AUGUST 10, 2015
14 OF 20	C7.2	SITE LIGHTING PLAN	MARCH 13, 2015	AUGUST 10, 2015
15 OF 20	C7.3	SITE LIGHTING DETAILS	MARCH 13, 2015	AUGUST 10, 2015
16 OF 20	L1.0	PLANTING PLAN	MARCH 13, 2015	AUGUST 10, 2015
17 OF 20	L1.1	PLANTING PLAN AT ALDWYN TRIANGLE	MARCH 13, 2015	AUGUST 10, 2015
18 OF 20	L2.0	PLANTING SCHEDULE AND TABULATIONS	MARCH 13, 2015	AUGUST 10, 2015
19 OF 20	L2.1	LANDSCAPE DETAILS	MARCH 13, 2015	AUGUST 10, 2015
20 OF 20	L2.2	LANDSCAPE DETAILS	MARCH 13, 2015	AUGUST 10, 2015



**ENGINEER CERTIFICATION**

I HEREBY CERTIFY THAT THE PLAN SHOWN AND DESCRIBED HEREON IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY RADNOR TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE.

DATE: \_\_\_\_\_

GREGORY C. NEWELL, PE  
PENNSYLVANIA LICENSE NO. PE 36760-E

**RADNOR TOWNSHIP ENGINEER CERTIFICATION:**

REVIEWED BY RADNOR TOWNSHIP ENGINEER,  
THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_.

**RADNOR TOWNSHIP BOARD OF SUPERVISORS CERTIFICATION:**

APPROVED BY RADNOR TOWNSHIP BOARD OF SUPERVISORS,  
THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
PRESIDENT

**DELAWARE COUNTY PLANNING DEPARTMENT CERTIFICATION:**

REVIEWED BY THE DELAWARE COUNTY PLANNING DEPARTMENT,  
THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_.

**RADNOR TOWNSHIP ZONING OFFICER CERTIFICATION:**

REVIEWED BY THE RADNOR TOWNSHIP ZONING OFFICER,  
THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_.

**RECORDER OF DEEDS**

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

\_\_\_\_\_  
(DEPUTY) RECORDER OF DEEDS

**CERTIFICATE OF OWNERSHIP AND ACKNOWLEDGEMENT OF PLAN**

ON THIS, THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_, BEFORE ME, THE

UNDERSIGNED OFFICER, PERSONALLY APPEARED \_\_\_\_\_

\_\_\_\_\_  
(NAME OF OWNER)

WHO BEING DULY SWORN ACCORDING TO LAW, DEPOSES AND SAYS THAT HE/SHE IS THE OWNER AND/OR EQUITABLE OWNER OF THE PROPERTY SHOWN ON THIS PLAN, AND THAT HE/SHE ACKNOWLEDGES THE SAME TO BE HIS/HER ACT AND PLAN AND DESIRES THE SAME BE RECORDED AS SUCH ACCORDING TO LAW.

WITNESS MY HAND AND SEAL THE DAY AND DATE ABOVE WRITTEN.

MY COMMISSION EXPIRES: \_\_\_\_\_

\_\_\_\_\_  
(NOTARY PUBLIC OR OTHER OFFICER)

**OWNER / APPLICANT**

VILLANOVA UNIVERSITY  
800 E LANCASTER AVE  
VILLANOVA, PA 19085  
610-519-4500

Villanova University  
Church Walk and Bridge  
Lancaster and Ithan Avenues  
Villanova PA 19085

**VMA  
RAMSA**

ARCHITECT-OF-RECORD  
Voith & Mactavish Architects LLP  
2401 Walnut Street, 6th Floor  
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phone: 215-545-4544  
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www.voithandmactavish.com

DESIGN ARCHITECT  
Robert A.M. Stern Architects LLP  
460 West 34th Street  
New York, New York 10001  
phone: 212-967-5100  
fax: 212-967-5588  
www.ramsa.com

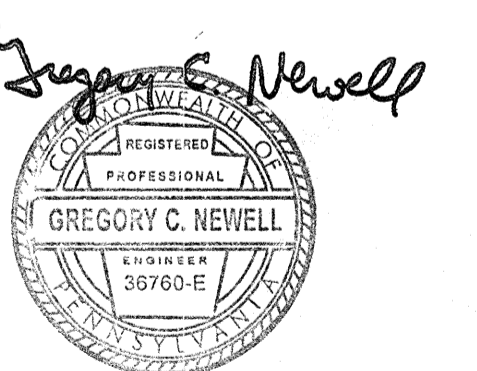
CIVIL ENGINEER  
Nave Newell Inc.  
900 West Valley Road, Suite 1100  
Wayne, PA 19087  
phone: 610-265-8323  
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www.navenewell.com

STRUCTURAL ENGINEER - PARKING  
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The Harman Group, Inc.  
900 West Valley Forge Road, Suite 200  
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mobile phone: 610-334-0974  
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MEP&FP ENGINEER  
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phone main: 856-433-6380  
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www.sikora-wa.com

ELEVATOR CONSULTANT  
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25 Bala Avenue, Suite 201  
Bala Cynwyd, PA 19004  
phone: 610-667-1717  
fax: 610-667-0216



**RECORD PLAN  
SUBMISSION**

Revision #6 OCTOBER 6, 2015  
Date March 13, 2015  
Title Title Sheet

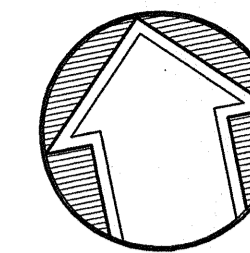
Scale As Noted  
Drawn By DWN

**C0.0**

Sheet No. 1 of 20

Contractor to verify all dimensions in field and inform Architect of any discrepancies before starting work.





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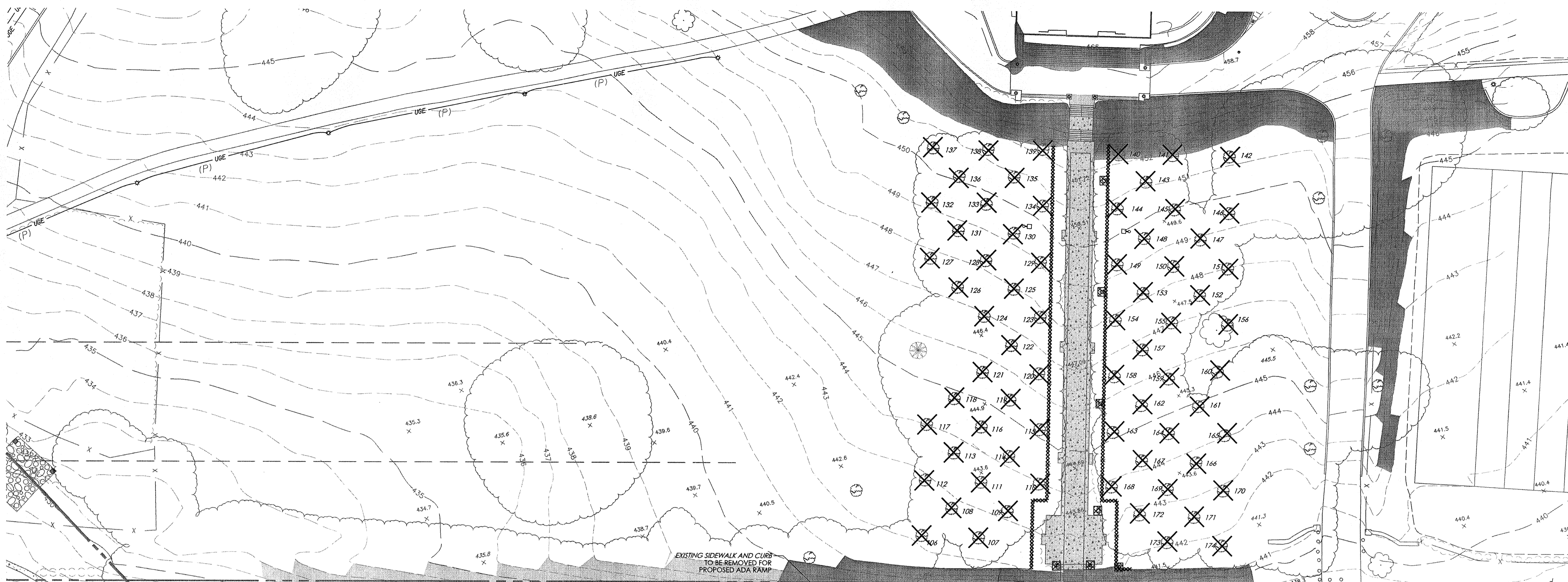
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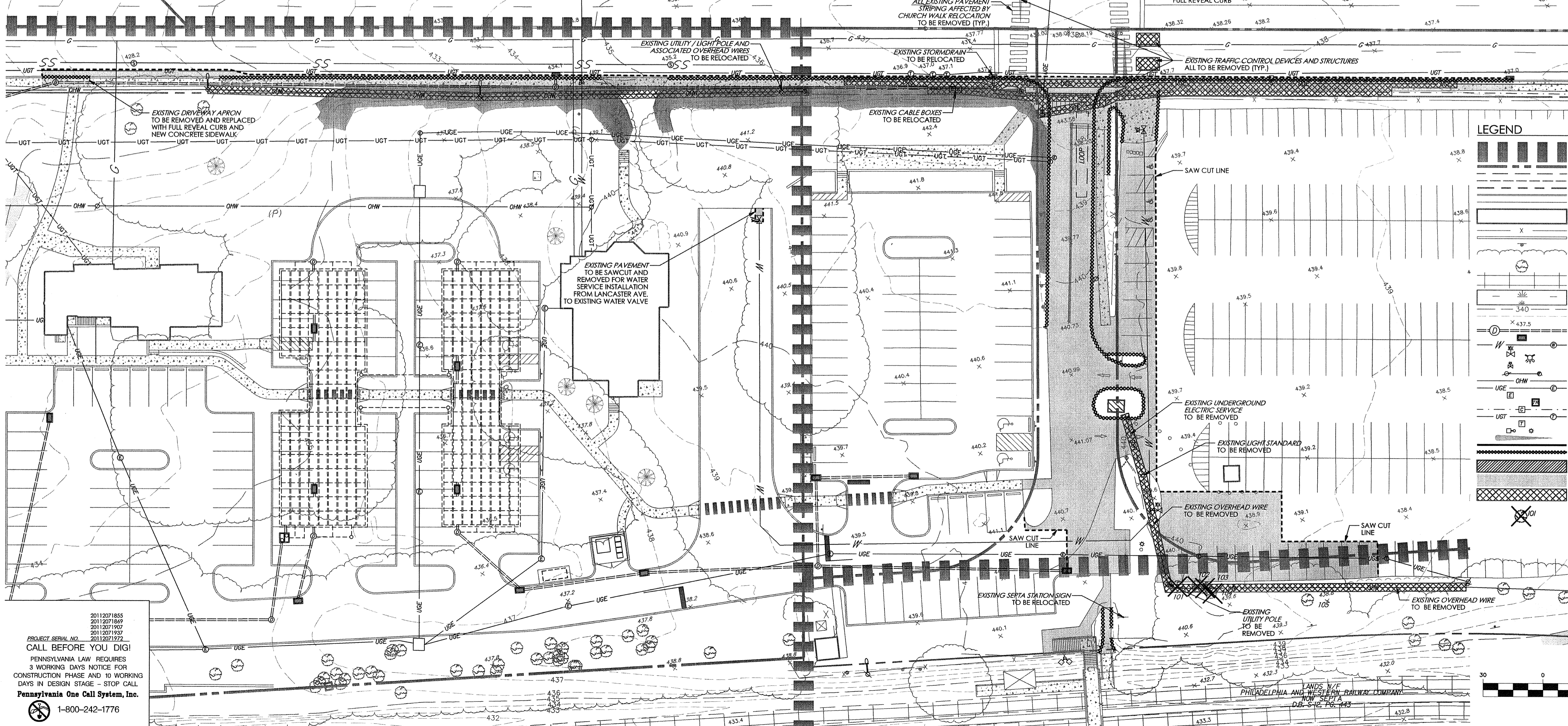


### EXISTING TREE REMOVAL CHART

NUMBER	TYPE	SIZE (IN)	NUMBER	TYPE	SIZE (IN)
101	CHR	6	150	CHR	8
102	CHR	6	151	CHR	8
103	MAP	6	152	CHR	8
104	ASH	36	153	CHR	8
			154	CHR	10
106	CHR	12	155	CHR	8
107	CHR	12	156	CHR	8
108	CHR	10	157	CHR	10
109	CHR	10	158	CHR	8
110	CHR	8	159	CHR	6
111	CHR	10	160	CHR	6
112	CHR	10	161	CHR	8
113	CHR	10	162	CHR	8
114	CHR	10	163	CHR	10
115	CHR	10	164	CHR	4
116	CHR	10	165	CHR	4
117	CHR	12	166	CHR	4
118	CHR	10	167	CHR	8
119	CHR	10	168	CHR	10
120	CHR	10	169	CHR	6
121	CHR	12	170	CHR	2
122	CHR	10	171	CHR	6
123	CHR	10	172	CHR	10
124	CHR	10	173	CHR	10
125	CHR	8	174	CHR	8
126	CHR	12			
127	CHR	8			
128	CHR	6			
129	CHR	10			
130	CHR	12			
131	CHR	12			
132	CHR	8			
133	CHR	8			
134	CHR	10			
135	CHR	12			
136	CHR	10			
137	CHR	10			
138	CHR	12			
139	CHR	12			
140	CHR	10			
141	CHR	10			
142	CHR	6			
143	CHR	12			
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148	CHR	8			
149	CHR	10			

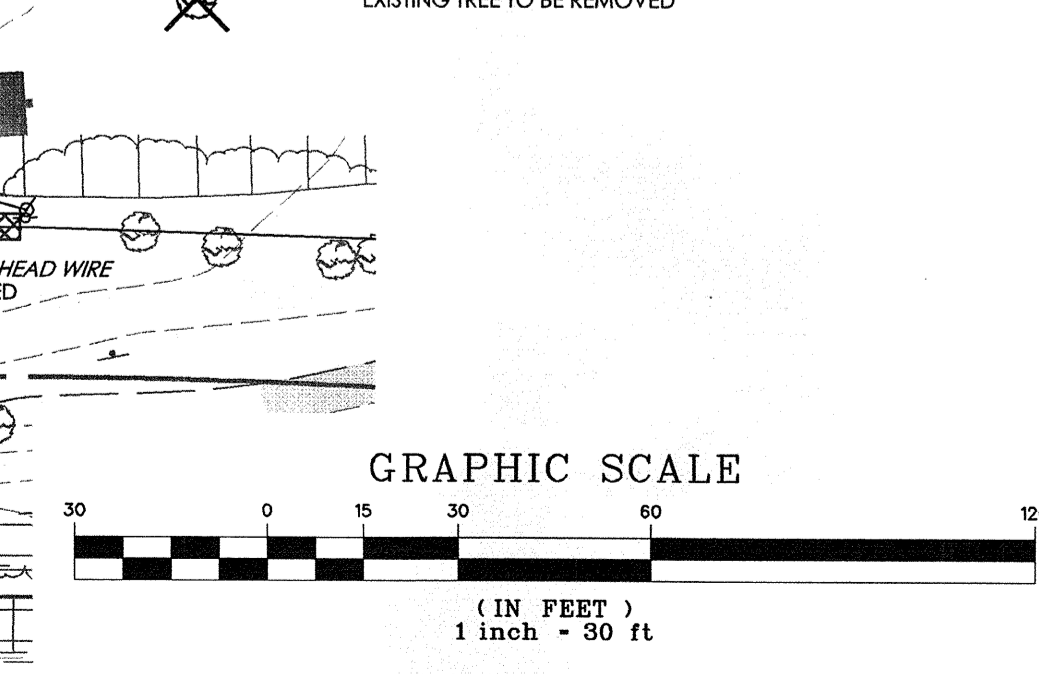


### LANCASTER AVENUE (SR 0030) (VARIABLE WIDTH R.O.W.) (25 M.P.H.)



### LEGEND

- ZONING LINE
- PROPERTY LINE
- BUILDING SETBACK LINE
- PARKING SETBACK LINE
- LEGAL RIGHT-OF-WAY LINE
- EXISTING CURB
- EXISTING EDGE OF PAVEMENT
- EXISTING BUILDING
- EXISTING FENCE
- EXISTING RETAINING WALL
- EXISTING SIGN
- EXISTING TREE LINE
- EXISTING TREE
- EXISTING RAILROAD TRACKS
- EXISTING WETLANDS
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING STORM SEWER WITH MANHOLE
- EXISTING STORM INLET
- EXISTING WATER SERVICE WITH MANHOLE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING GAS VALVE
- EXISTING UTILITY POLE WITH GUY WIRE
- EXISTING OVERHEAD WIRE
- EXISTING UNDERGROUND ELECTRIC SERVICE WITH MANHOLE
- EXISTING ELECTRIC METER
- EXISTING TRANSFORMER
- EXISTING CABLE SERVICE WITH CABLE BOX
- EXISTING UNDERGROUND TELEPHONE SERVICE WITH MANHOLE
- EXISTING TELEPHONE METER
- EXISTING LIGHT STANDARDS
- EXISTING TRAFFIC SIGNAL MAST ARM
- EXISTING BOUNDARY LINE
- EXISTING CURB, RETAINING WALL OR FENCE TO BE REMOVED
- EXISTING BUILDING / STRUCTURE TO BE REMOVED
- EXISTING IMPERVIOUS AREA TO BE REMOVED
- EXISTING UTILITY TO BE REMOVED
- EXISTING TREE TO BE REMOVED



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3 WORKING DAYS NOTICE FOR  
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### RECORD PLAN SUBMISSION

Revision #6 October 6, 2015  
Date March 13, 2015  
Title Existing Features /  
Demolition Plan  
Scale 1" = 30'  
Drawn By DCH

# C1.1

Sheet No. 2 of 20

Contractor to verify all dimensions in field and inform  
Architect of any discrepancies before starting work.



**CAMPUS-WIDE ZONING DATA**

CLASSIFICATION:	REQUIRED	EXISTING	PROPOSED
BUILDING AREA	30% MAX.	13.0% (29.26 ACRES) (c)	14.3% (32.25 ACRES) (b)
TOTAL IMPERVIOUS COVERAGE	45% MAX.	37.6% (84.60 ACRES) (c)	36.4% (81.85 ACRES) (c)

- NOTES:**
- DATA OBTAINED FROM LAST CAMPUS DEVELOPMENT APPROVAL SHOWN ON A PLAN ENTITLED "VILLANOVA UNIVERSITY WEST CAMPUS, PROPOSED SOCCER FIELD RECONSTRUCTION, PLAN DATED OCTOBER 4, 2013, LAST REVISED MAY 6, 2014, PREPARED BY ASSOCIATED ENGINEERING CONSULTANTS INCORPORATED (AEC).
  - DORMITORY BUILDING 1: 1.05 ACRES (1A: 0.42 + 1B: 0.19 + 1C: 0.44)  
 DORMITORY BUILDING 2: 1.17 ACRES (2A: 0.32 + 2B: 0.37 + 2C: 0.48)  
 PERFORMING ARTS CENTER: 40.77 ACRES  
 TOTAL: 2.99 ACRES (PROPOSED BUILDING AREA)  
 EXISTING BUILDING AREA: 29.26 ACRES  
 PROPOSED BUILDING AREA: 42.92 ACRES  
 TOTAL: 32.25 ACRES
  - EXISTING IMPERVIOUS: 84.60 ACRES  
 CIDC REDUCTION: -2.65 ACRES  
 BRIDGE & VISITOR LOT REDUX: 0.10 ACRES  
 TOTAL: 81.85 ACRES

**CAMPUS PARKING ANALYSIS**

**EXISTING REQUIRED PARKING SPACES**

AREA USE DESCRIPTION	AREA USE QUANTITY	REQUIRED PARKING
DORMITORY	4,322 BEDS	1,441
OFFICE (NET SF)	365,851 SF	1,303
RETAIL	6,250 SF (6)	44
RESTAURANT	—	—
LARGEST ASSEMBLY AREA	3,778 FIXED SEATS	945
GYMNASIUM / LIBRARY	42,432 SF	283
LARGEST ASSEMBLY AREA	13,722 SF	344
UNSPECIFIED AREA	30,929 SF	104
<b>TOTAL SPACES</b>	<b>4,464 SPACES</b>	<b>2833</b>
<b>PARKING AVAILABILITY</b>	<b>5,130 SPACES</b>	<b>544</b>
<b>SURPLUS</b>	<b>666 SPACES</b>	<b>—</b>

**PROPOSED REQUIRED PARKING SPACES**

AREA USE DESCRIPTION	AREA USE QUANTITY	REQUIRED PARKING
DORMITORY	5,460 BEDS (1)	1,820
OFFICE (NET SF)	368,091 SF (2)	1,311
RETAIL	12,371 SF (3)	76
RESTAURANT	85 SEATS (4)	39
LARGEST ASSEMBLY AREA	4,178 FIXED SEATS (5)	1,045
GYMNASIUM / LIBRARY	42,432 SF	283
LARGEST ASSEMBLY AREA	13,722 SF	344
UNSPECIFIED AREA	37,179 SF (6)	124
<b>TOTAL SPACES</b>	<b>5,042 SPACES</b>	<b>2833</b>
<b>PARKING AVAILABILITY</b>	<b>5,126 SPACES</b>	<b>544</b>
<b>SURPLUS</b>	<b>84 SPACES</b>	<b>—</b>

**PROPOSED PARKING TABULATION**

AREA USE DESCRIPTION	EXISTING	PROPOSED
MAIN LOT	1,126	62
PIKE LOT	576	1,289
VISITOR LOT	80	45
W. LANCASTER LOT	79	240
ST. AUGUSTINE CENTER	271	494
NEVIN FIELD HOUSE	48	47
UNAFFECTED CAMPUS SPACES	2949	2949
<b>TOTAL</b>	<b>5,130 SPACES</b>	<b>5,126 SPACES</b>

- 1,138 BEDS PROPOSED WITHIN DORMITORIES 1A-2C
- 2,240 SF OFFICE PROPOSED WITHIN THE PERFORMING ARTS CENTER
- 9,569 SF BOOKSTORE, 2,877 SF CONVENIENCE STORE, 125 SF RETAIL WITHIN THE PERFORMING ARTS CENTER & 27 EMPLOYEES
- 85 SEATS & 20 EMPLOYEES WITHIN PROPOSED BISTRO
- 400 SEAT THEATER WITHIN THE PERFORMING ARTS CENTER
- CONVERSION OF EXISTING BOOKSTORE TO UNSPECIFIED AREA

**ZONING DATA**

COMPREHENSIVE INTEGRATED COLLEGE DEVELOPMENT DISTRICT (CICD)

CLASSIFICATION:	REQUIRED	PROPOSED
MINIMUM CAMPUS AREA	75 ACRES	225 ACRES (PI ZONING DISTRICT) 15 ACRES (CO ZONING DISTRICT) 240 ACRES (TOTAL CAMPUS) 13.81 GROSS ACRES 11.71 NET ACRES
MINIMUM/MAXIMUM CICD AREA	>10 / <15 ACRES	180
MAXIMUM BUILDING LENGTH	180'	171'
MINIMUM BUILDING SEPARATION	45'	45'
BETWEEN BUILDING AND BUILDING	45'	30'
BETWEEN BUILDING AND PARKING STRUCTURE	30'	30'
MAXIMUM BUILDING HEIGHT	50'	49.9'
ACADEMIC AND PERFORMANCE FACILITIES	65'	64.1'
FLY LOFT	45'	44.9' BLDG. 1, 44.8' BLDG. 2
HOUSING AND SOCIAL FACILITIES	38'	37.9'
PARKING STRUCTURE	30%	35.5%*
MAXIMUM BUILDING COVERAGE - TOTAL (INCLUDES PARKING STRUCTURE)	10%	7.6%
MAXIMUM BUILDING COVERAGE - INDIVIDUAL	10%	8.5%
RESIDENCE HALL 1 (1.05 ACRES)	10%	5.6% OF GSF
RESIDENCE HALL 2 (1.17 ACRES)	10%	5.6% OF GSF
PERFORMING ARTS CENTER (0.7 ACRES)	5% OF GSF	2.9% OF GSF ***
MAXIMUM RETAIL SQUARE FOOTAGE	100'	227.8'
MINIMUM FACILITY SETBACK FROM SINGLE FAMILY RESIDENTIAL USE	10'	10'
MINIMUM ELEVATOR/STAIR TOWER ON PARKING STRUCTURE SETBACK	5'	5'
MAXIMUM LENGTH OF ELEVATOR/STAIR TOWER PROJECTION	5'	5'
MINIMUM LOADING AREA SETBACK	50'	82.5'
RIPARIAN BUFFER SETBACK	82%**	69%
MAXIMUM IMPERVIOUS AREA		

\* BUILDING COVERAGE EXCEEDING 30% SHALL REQUIRE TWO SQUARE FEET OF OPEN SPACE DEDICATION PER ONE SQUARE FOOT OVER 30%. 33.10% OF EXCEEDING 30% BUILDING COVERAGE REQUIRES 66.212 SF OPEN SPACE DEDICATION. (87,120 SF PROVIDED) (REFER TO THIS SHEET FOR LOCATION OF PRESERVATION AREA)

\*\* PROPOSED IMPERVIOUS CONDITIONS MUST BE A MINIMUM 10% REDUCTION FROM EXISTING IMPERVIOUS AREA  
 MAIN LOT: 6.8 AC + PIKE LOT: 4.0 AC = 10.8 AC / 11.71 AC = 92% EXISTING IMPERVIOUS COVERAGE - 10% = 82%

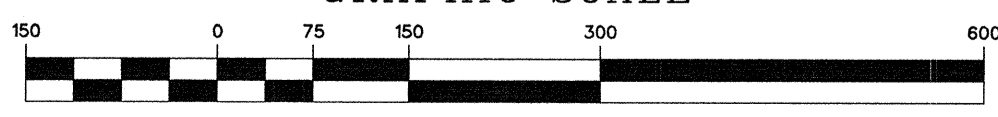
\*\*\* 5.101 SF (2A) + 9.369 SF (2B) + 125 SF (PAC) = 14,595 SF = 2.9% OF GSF  
 194,558 SF (BUILDING 1) + 223,376 SF (BUILDING 2) + 79,400 SF (PAC) = 497,334 SF

**SETBACK CHART**

	ARTERIAL STREETS		MINOR COLLECTORS		RAILROAD RIGHTS-OF-WAY	
	REQUIRED	PROPOSED	REQUIRED	PROPOSED	REQUIRED	PROPOSED
PERFORMANCE AND SOCIAL FACILITIES	35'	38.2'	30'	65'	50'	332'
HOUSING FACILITIES	35'	39'	30'	30'	50'	61.6'
PARKING STRUCTURES	120'	149.5'	20'	21'	30'	30'
SURFACE PARKING LOTS	60'	237.7'	60'	103.5'	5'	12'
RETAIL SUBORDINATE USES	35'	39'	30'	30'	50'	234.4'

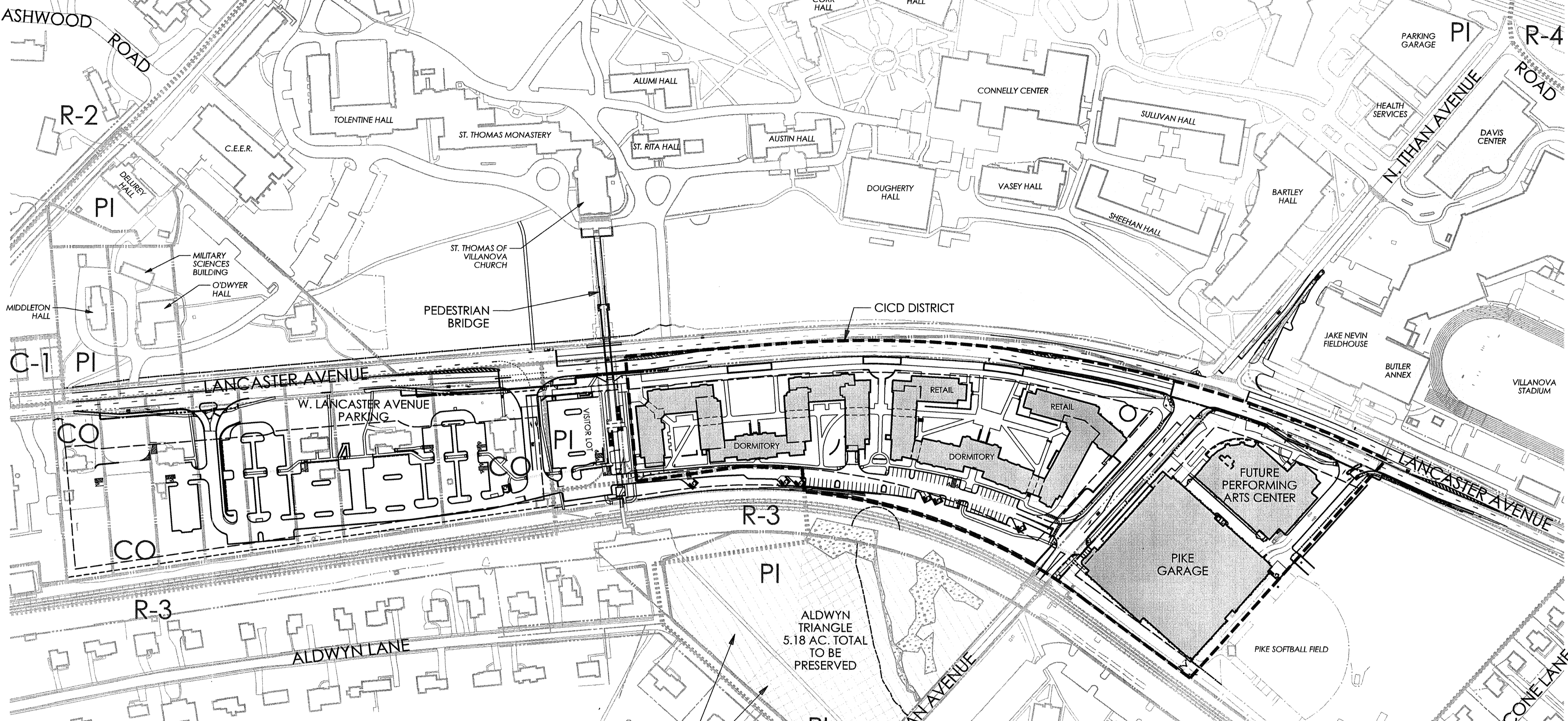
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 2011/07/18/59  
 2011/07/19/07  
 2011/07/19/07  
 PROJECT SERIAL NO.: 20110201972  
 CALL BEFORE YOU DIG!  
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 3 WORKING DAYS NOTICE FOR  
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**GRAPHIC SCALE**



**VILLANOVA BUILDING HEIGHT CALCULATIONS**

LOCATION	AVERAGE EKG GRADE	BUILDING FLOOR LEVEL	HIGHT FROM FLOOR	TOTAL
BUILDING 1A	438.5	439.0	43.1	
BUILDING 1B	435.0	437.0	44.6	
BUILDING 1C	436.7	436.0	44.9	
BUILDING 1	436.7	437.3	44.3	44.9 (C45)
BUILDING 2A	433.8	435.0	43.2	
BUILDING 2B	430.8	430.0	43.9	
BUILDING 2C	432.2	435.0	44.0	
BUILDING 2	432.5	433.3	43.7	44.8 (C45)
PIKE GARAGE	427.8	421.7	44.0	37.9 (C38)
PERF. ARTS CENTER	432.0	434.5	47.3	49.9 (C50)
PAC FLY TOWER	432.0	434.5	61.5	64.1 (C65)



ADDITIONAL AREA TO BE PRESERVED = 3.18 AC.  
 PRESERVATION AREA: TO SATISFY MINIMUM CICD REQUIREMENTS = 2.00 AC.\*

**FINAL CONDITIONAL USE APPLICATION CONDITIONS:**

AND NOW, THIS 24<sup>TH</sup> DAY OF NOVEMBER, 2014, AFTER DUE DELIBERATION AND DISCUSSION AT PUBLIC HEARINGS, THE RADNOR TOWNSHIP BOARD OF COMMISSIONERS DOES HEREBY GRANT THE CONDITIONAL USE APPLICATION OF VILLANOVA UNIVERSITY, SUBJECT TO THE FOLLOWING CONDITIONS:

- THE APPLICANT SHALL COMPLY WITH ALL OTHER APPLICABLE TOWNSHIP ORDINANCES AND SHALL SUBMIT A LAND DEVELOPMENT PLAN PURSUANT TO THE TOWNSHIP'S SUBDIVISION AND LAND DEVELOPMENT ORDINANCE PRIOR TO THE CONSTRUCTION OF ANY FACILITIES.
- THAT THE TRANSPORTATION, ROADWAY AND SIGNALIZATION AND IMPROVEMENTS NECESSARY FOR THE CONSTRUCTION HAVE FULL ACCESS TO ITHAN AVENUE FROM BOTH THE PIKE LOT PARKING GARAGE AND LANCASTER AVENUE HOUSING PARKING AREA WITH PROVISIONS FOR STOP CONTROL FOR BOTH PARKING ACCESS TO ITHAN AVENUE AND A PEDESTRIAN ACTIVATED SIGNAL INCLUDING THE NEW PEDESTRIAN CROSSWALK BE REQUIRED IF APPROVED BY PENNDOT, UNLESS WAIVED BY THE BOARD OF COMMISSIONERS DURING THE LAND DEVELOPMENT PROCESS.
- DURING THE LAND DEVELOPMENT PROCESS AN EVENT CIRCULATION PLAN BE DEVELOPED TO ADDRESS EVENT PARKING AND TRAFFIC CIRCULATION WITH THE INPUT OF THE RADNOR TOWNSHIP POLICE DEPARTMENT AND TOWNSHIP TRAFFIC ENGINEER OUTLINING PROCEDURES, TRAFFIC PATTERNS, PARKING CONFIGURATIONS AND WAY FINDING TECHNIQUES FOR THE VARIOUS SPORTING AND OTHER EVENTS HELD AT THE UNIVERSITY. UPON DEVELOPMENT OF THE EVENT CIRCULATION PLAN, VILLANOVA SHALL BE RESPONSIBLE FOR CONSTRUCTING AND/OR INSTALLING SUCH SIGNS, STRUCTURES, OR OTHER DIRECTIONAL AIDS NECESSARY TO IMPLEMENT THE EVENT CIRCULATION PLAN.
- THAT VILLANOVA UNIVERSITY CONTRIBUTES THE SUM OF ONE HUNDRED SEVENTY-FIVE THOUSAND DOLLARS (\$175,000.00) TOWARDS THE DESIGN, APPROVAL AND INSTALLATION OF A TRAFFIC ADAPTIVE SIGNAL SYSTEM THAT WOULD INCORPORATE THE FOLLOWING SIGNALIZED INTERSECTIONS ALONG LANCASTER AVENUE:  
 A. SPROUL ROAD / SPRING ROAD, ALDWYN LANE, & KENILWORTH STREET  
 B. CHURCH WALK  
 C. ITHAN AVENUE  
 D. LOWRYS LANE  
 E. AIRDALE ROAD  
 F. COUNTY LINE ROAD
- THAT DURING THE LAND DEVELOPMENT PROCESS AN EMERGENCY EVACUATION PLAN FOR THE NEW STUDENT HOUSING BE DEVELOPED.
- THAT APPROPRIATE FENCING BE PROVIDED ON BOTH THE NORTH AND SOUTH SIDES OF LANCASTER AVENUE IN THE AREA OF THE CHURCH WALK PEDESTRIAN BRIDGE IN AN EFFORT TO RESTRICT PEDESTRIAN TRAFFIC FROM ACCESSING THE CAMPUS. A GATE SHALL BE PROVIDED OR PEDESTRIAN ACCESS DURING CHURCH EVENTS IF APPROVED BY THE BOARD OF COMMISSIONERS DURING THE LAND DEVELOPMENT APPROVAL PROCESS.
- THAT THE UNIVERSITY PRESERVE THE ENTIRE AREA KNOWN AS THE ALDWYN TRIANGLE AND RESTRICT IT AS OPEN SPACE EXCEPT FOR THE PORTION NECESSARY TO PROVIDE PEDESTRIAN ACCESSIBILITY AND HANDICAP ACCESSIBILITY IMPROVEMENTS FOR THE ADJACENT SEPTA RAIL LINE.
- THAT A LANDSCAPE AND BUFFER PLAN BE DEVELOPED TO COMPLY WITH SECTION 280-48.1.D.(3)(E) OF THE ZONING ORDINANCE.
- THAT VILLANOVA SEEK PERMISSION FROM PECO TO PLANT SCREENING ON THE SOUTH SIDE OF THE PECO R-100 LINE TO VISUALLY SCREEN THE SEPTA BRIDGE FROM THE ADJACENT RESIDENTIAL NEIGHBORS. PROVIDED THAT THE APPLICANT RECEIVES PERMITS FROM PECO PRIOR TO THE INSTALLATION AND MAINTENANCE PLAN OF THE VEGETATION NECESSARY FOR THIS SCREENING DURING LAND DEVELOPMENT.
- VILLANOVA SHALL PROVIDE RADNOR TOWNSHIP A LIST OF CONTRACTORS, SUBCONTRACTORS AND VENDORS AND THEIR ADDRESSES WITHIN TWENTY (20) DAYS OF THE EXECUTION OF ANY CONTRACTS BY VILLANOVA IN CONNECTION WITH THE DEVELOPMENT AND/OR CONSTRUCTION OF THE PROPOSED PROJECT. THE PURPOSE OF THIS LIST IS TO PERMIT THE TOWNSHIP TO AUDIT FOR REQUIRED BUSINESS PRIVILEGE/MERCANTILE TAXES.
- DURING THE LAND DEVELOPMENT PROCESS, THE APPLICANT SHALL USE BEST EFFORTS TO DEVELOP AND CONSTRUCT STORMWATER MANAGEMENT FACILITIES, INCLUDING GREEN INFRASTRUCTURE PRACTICES AND COMPONENTS THAT MEET OR EXCEED INFILTRATION OR RETENTION REQUIREMENTS AS CURRENTLY REQUIRED BY THE RADNOR TOWNSHIP STORMWATER MANAGEMENT ORDINANCE. THE APPLICANT SHALL CONDUCT SOIL TESTING AS NECESSARY TO DETERMINE WHETHER THE SITE CAN ACCOMMODATE VOLUME MANAGEMENT IN EXCESS OF 1-INCH OF RUN-OFF FROM ALL IMPERVIOUS SURFACES RESULTING FROM THE PROJECT. IF SOIL TESTING INDICATES THAT IT IS POSSIBLE TO PROVIDE VOLUME MANAGEMENT IN EXCESS OF 1-INCH OF RUN-OFF, THE APPLICANT SHALL CONSTRUCT SUCH NECESSARY STORMWATER FACILITIES TO ACCOMMODATE THIS INCREASED VOLUME.
- THE APPLICANT SHALL OBTAIN REVISIONS TO BOTH THE RADNOR TOWNSHIP AND LOWER MERION TOWNSHIP ACT 537 PLANS IN ORDER TO ACCOMMODATE THE INCREASED WASTEWATER DISPOSAL GENERATED BY THE PROJECT.
- THE APPLICANT SHALL PERFORM A TRAFFIC PLAN DURING THE LAND DEVELOPMENT PROCESS DELINEATING THE PATH BY WHICH THE EXISTING POPULATION OF COMMUTING AND PART-TIME STUDENTS WILL BE DIRECTED TO AND FROM PARKING FOR EACH PHASE OF THE CONSTRUCTION.
- THE APPLICANT SHALL PROVIDE PARKING ON A SPACE AVAILABLE BASIS, ON THE NORTH SIDE OF LANCASTER AVENUE ON EXISTING VILLANOVA PROPERTY ADJACENT TO THE CHURCH FOR CHURCH RELATED EVENTS.
- THE APPLICANT SHALL MAINTAIN A PEDESTRIAN CROSSWALK FROM THE PROPOSED PROJECT SITE TO THE EXISTING CHURCH AT THE INTERSECTION OF LANCASTER AVENUE.
- THE APPLICANT SHALL INSURE THAT NO AMPLIFIED MUSIC OR OTHER EXCESSIVE NOISE SHALL EMANATE FROM ANY OF THE SOUTH FACING DORMS DURING THE LAND DEVELOPMENT PROCESS. THE TOWNSHIP AND APPLICANT SHALL ESTABLISH A PERMISSIBLE SOUND LEVEL AT THE PROPERTY BOUNDARY OF THE ALDWYN LANE RESIDENTIAL USE.
- THE APPLICANT'S LAND DEVELOPMENT PLANS SHALL BE IN SUBSTANTIAL CONFORMITY WITH THE CONDITIONAL USE PLANS DATED MAY 2, 2014 AS AMENDED DURING THE HEARINGS.

**\*ALDWYN TRIANGLE: LAND PRESERVATION CALCULATIONS**

ALLOWABLE BUILDING COVERAGE: 13.81 AC x .30 = 4.14 ACRES  
 PROPOSED BUILDING/STRUCTURE COVERAGE: 4.90 ACRES  
 PROPOSED GARAGE = 1.91 AC  
 BUILDING COVERAGE ABOVE 30% = 0.76 ACRES (4.90 - 4.14)  
 REQUIRED LAND PRESERVATION = 0.76 x 2 = 1.52 ACRES  
 PROPOSED UNRESTRICTED LAND PRESERVATION AREA = 2.00 ACRES  
 PROPOSED LAND PRESERVATION AREA PER CONDITIONAL USE DECISION #7 = 5.18 ACRES

**GENERAL NOTES:**

- THIS PLAN IS BASED ON A SURVEY CONDUCTED IN THE FIELD BY NAVE NEWELL, INC., AND COMPLETED AUGUST 8, 2011.
- PROPERTY AS SHOWN IS IN NON-FLOOD PRONE COMMUNITY AS DEPICTED ON THE FEDERAL EMERGENCY AGENCY FIRM FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 42048C000A, MAP REVISED NOVEMBER 18, 2009.
- LOCATIONS OF EXISTING UTILITIES AS SHOWN HEREIN HAVE BEEN DEVELOPED FROM EXISTING UTILITY RECORDS, PLANS BY OTHERS AND/OR ABOVE-GROUND EXAMINATION OF SITE. THE COMPLETENESS OR ACCURACIES OF THE LOCATIONS ARE NOT GUARANTEED. SHOULD ANY NEW CONSTRUCTION BE PROPOSED, THE CONTRACTOR MUST VERIFY LOCATIONS AND DEPTHS OF ALL UTILITIES BEFORE START OF WORK.
- NO REVIEW OF THE PROPERTY REGARDING THE PRESENCE OF WETLANDS WAS ACCOMPLISHED AS A PART OF THIS SURVEY EXCEPT WHERE SHOWN.
- NO REVIEW OF THE PROPERTY REGARDING THE PRESENCE OF HAZARDOUS MATERIAL WAS ACCOMPLISHED AS A PART OF THIS PLAN.
- THE PROPOSED USES ARE TO BE SERVICED BY PUBLIC SEWER (LOWER MERION TOWNSHIP) AND PUBLIC WATER (AQUA PA).
- ALL PROPOSED UTILITIES IN CONNECTION WITH THIS SITE SHALL BE PLACED UNDERGROUND.
- PURSUANT TO SECTION 400 OF THE ACT OF JUNE 1, 1946, (PL 1242, NO. 428), KNOWN AS THE "STATE HIGHWAY LAW", PENNDOT HIGHWAY OCCUPANCY PERMITS ARE REQUIRED FOR ANY PROPOSED CONSTRUCTION WITHIN THE RIGHT-OF-WAY OF LANCASTER AVENUE, S.R. 0029.
- ALL CONSTRUCTION IS TO BE IN COMPLIANCE WITH THE STANDARDS AND SPECIFICATIONS OF RADNOR TOWNSHIP.
- THE PROPOSED BUILDING FOOTPRINTS NOTED ON THE PLAN ARE SCHEMATIC. THE ACTUAL ARCHITECTURAL PLANS SHALL BE UTILIZED FOR BUILDING CONSTRUCTION AND MUST BE NO LARGER THAN SCHEMATIC FOOTPRINT SHOWN. THE PROPOSED GRADING AND UTILITY CONNECTIONS ARE TO BE COORDINATED WITH THE ARCHITECTURAL PLANS, PRIOR TO CONSTRUCTION, TO AVOID ANY CONFLICTS. THE CONTRACTOR SHOULD NOTIFY THE OWNER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PERPETUAL MAINTENANCE OF THE PERMANENT STORM WATER DETENTION BASINS AND BASIN OUTLET STRUCTURES. NO CHANGES SHALL BE MADE TO THE STRUCTURES, PIPES OR FINISH GRADING WITHOUT PRIOR WRITTEN APPROVAL FROM THE TOWNSHIP.
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL UTILITY CONNECTION LOCATIONS.
- NO BUILDING OR OBSTRUCTION THAT WOULD OBSCURE THE VISION OF A MOTORIST SHALL BE PERMITTED WITHIN THE CLEAR-SIGHT TRIANGLE.
- THE PROJECT WILL REQUIRE A "GENERAL NPDES PERMIT" FROM THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION SUBJECT TO OBTAINING APPROVED EROSION AND SEDIMENTATION CONTROL PLANS FROM THE DELAWARE COUNTY CONSERVATION DISTRICT, PRIOR TO CLEARING OR EARTH MOVING ACTIVITY.
- ALL CURVED SECTIONS OF CURBING SHALL HAVE A FIVE FOOT RADIUS (R=5) UNLESS NOTED OTHERWISE AS SHOWN ON THIS PLAN.
- THE INTENDED USE OF THE PROPOSED BUILDINGS ARE FOR STUDENT HOUSING AND ASSOCIATED RETAIL.
- ULTIMATE RIGHT-OF-WAY OF ITHAN AVENUE, AS SHOWN, IS OFFERED FOR DEDICATION TO RADNOR TOWNSHIP AS PART OF THIS PLAN.
- GRADING AND EROSION CONTROL PLANS MUST BE SUBMITTED AND APPROVED PRIOR TO ISSUANCE OF BUILDING PERMITS.
- NOISE EMANATING FROM THE SOUTH-FACING DORMS SHALL NOT EXCEED 55 dBA AT NIGHTTIME AT THE PROPERTY BOUNDARY OF THE ALDWYN LANE RESIDENTIAL USES.

**ZONING DISTRICT TABLE**

C-1	LOCAL COMMERCIAL DISTRICT
CO	COMMERCIAL-OFFICE DISTRICT
PI	PLANNED INSTITUTIONAL DISTRICT
R-2	RESIDENCE DISTRICT
R-3	RESIDENCE DISTRICT
R-4	RESIDENCE DISTRICT

**LEGEND**

---	PROPERTY LINE
---	BUILDING SETBACK LINE
---	PARKING SETBACK LINE
---	LEGAL RIGHT-OF-WAY LINE
---	EXISTING CURB
---	EXISTING EDGE OF PAVEMENT
---	EXISTING BUILDING
---	EXISTING FENCE
---	EXISTING RETAINING WALL
---	EXISTING RAILROAD TRACKS
---	EXISTING WETLANDS
---	LIMITS OF CICD DISTRICT
---	PROPOSED RIGHT-OF-WAY LINE
---	PROPOSED CURB
---	PROPOSED EDGE OF PAVEMENT
---	PROPOSED BUILDING
---	PROPOSED DECORATIVE FENCE
---	MINIMUM REQUIRED PRESERVATION AREA
---	ADDITIONAL PRESERVATION AREA PROVIDED

Villanova University  
 Church Walk and Bridge  
 Lancaster and Ithan Avenues  
 Villanova PA 19085

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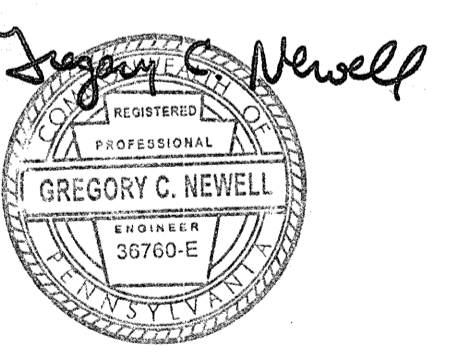
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 phone cell: 267-303-3753  
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**RECORD PLAN**

**SUBMISSION**

Revision #6 October 6, 2015  
 Date March 13, 2015  
 Title Composite Site Plan  
 Scale 1" = 150'  
 Drawn By MMB

**C2.0**

Sheet No. 3 of 20

Contractor to verify all dimensions in field and inform Architect of any discrepancies before starting work.



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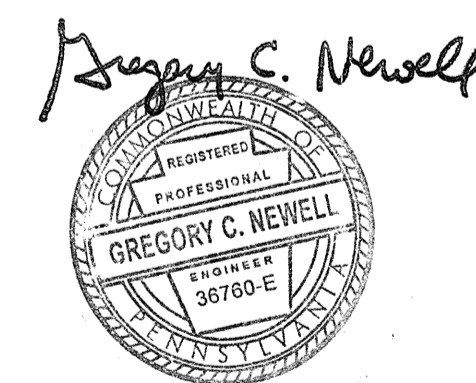
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## RECORD PLAN SUBMISSION

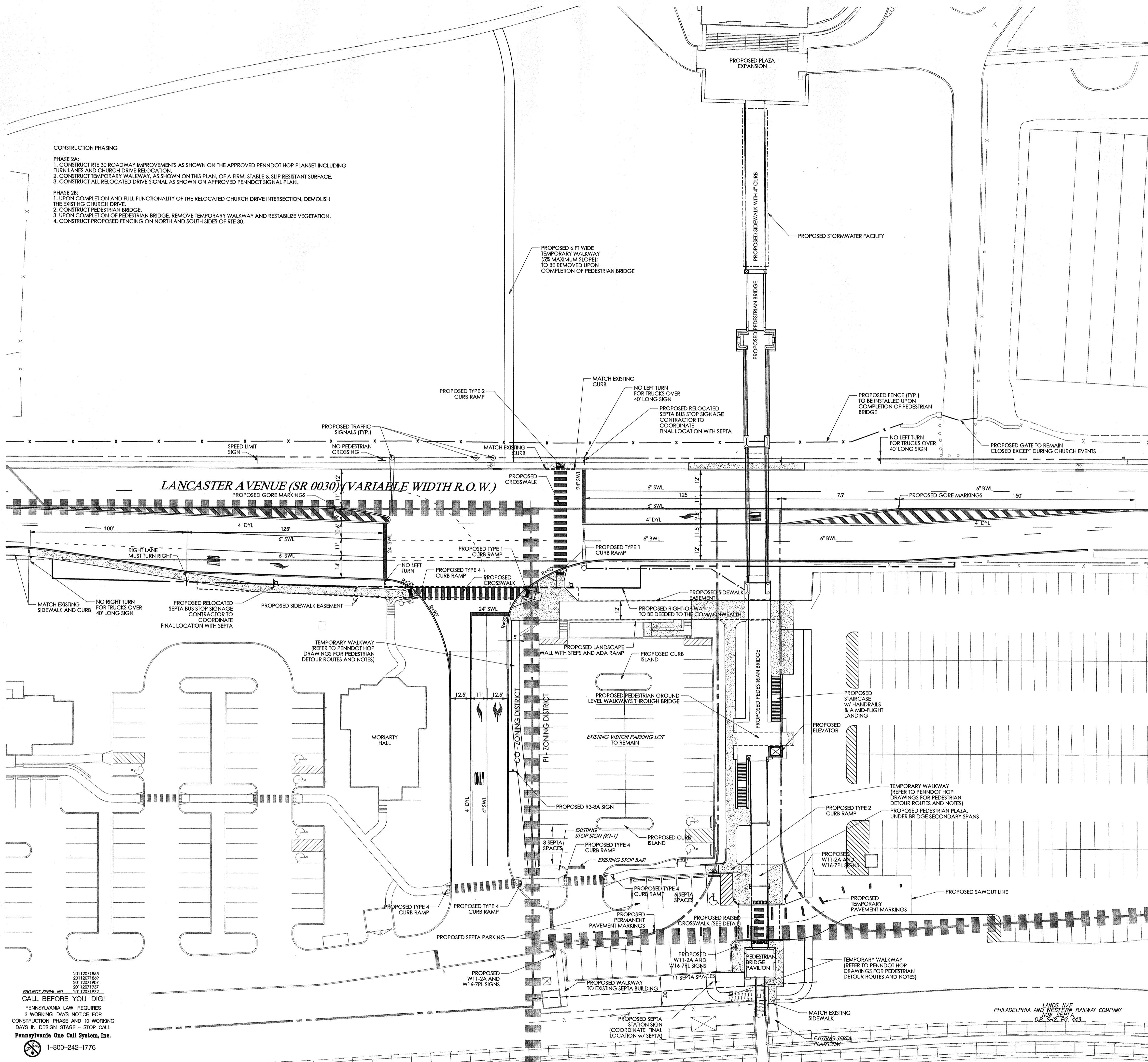
Revision #6 October 6, 2015  
 Date March 13, 2015  
 Title Site Plan

Scale 1" = 30'  
 Drawn By DWN

# C2.1

Sheet No. 4 of 20

Contractor to verify all dimensions in field and inform  
 Architect of any discrepancies before starting work.



### CONSTRUCTION PHASING

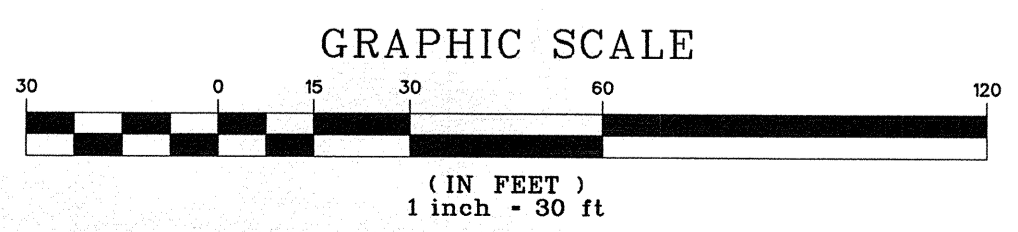
- PHASE 2A:  
 1. CONSTRUCT RTE 30 ROADWAY IMPROVEMENTS AS SHOWN ON THE APPROVED PENNDOT HOP PLANSET INCLUDING TURN LANES AND CHURCH DRIVE RELOCATION.  
 2. CONSTRUCT TEMPORARY WALKWAY, AS SHOWN ON THIS PLAN, OF A FIRM, STABLE & SLIP RESISTANT SURFACE.  
 3. CONSTRUCT ALL RELOCATED DRIVE SIGNAL AS SHOWN ON APPROVED PENNDOT SIGNAL PLAN.
- PHASE 2B:  
 1. UPON COMPLETION AND FULL FUNCTIONALITY OF THE RELOCATED CHURCH DRIVE INTERSECTION, DEMOLISH THE EXISTING CHURCH DRIVE.  
 2. CONSTRUCT PEDESTRIAN BRIDGE.  
 3. UPON COMPLETION OF PEDESTRIAN BRIDGE, REMOVE TEMPORARY WALKWAY AND RESTABILIZE VEGETATION.  
 4. CONSTRUCT PROPOSED FENCING ON NORTH AND SOUTH SIDES OF RTE 30.

### PEDESTRIAN DETOUR NOTES

- PEDESTRIAN WALKWAYS TO BE MAINTAINED DURING CONSTRUCTION. THE PEDESTRIAN BRIDGE SHALL BE CONSTRUCTED IN STAGES, AND AT ALL TIMES OF CONSTRUCTION THE CONTRACTOR SHALL PROVIDE AT LEAST ONE MEANS OF ACCESS EAST TO WEST ACROSS BRIDGE AREA. CONTRACTOR SHALL MAINTAIN PEDESTRIAN ACCESS FROM THE EXISTING SEPTA NHSL WALKWAY OVERPASS TO GROUND LEVEL UNTIL ALL OTHER PORTIONS OF BRIDGE STRUCTURE CONSTRUCTION ARE COMPLETED.
- CONTRACTOR SHALL NOTIFY SEPTA SUFFICIENTLY IN ADVANCE OF THE CLOSURE OF THE EXISTING SEPTA NHSL WALKWAY OVERPASS SO THEY MAY PROVIDE APPROPRIATE NOTICE TO TRANSIT USERS.
- UPON CLOSURE OF SEPTA NHSL WALKWAY OVERPASS:  
 A. PROVIDE BARRIERS TO PROTECT PEDESTRIANS FROM HAZARDS.  
 B. REMOVE EXISTING STAIRCASE, STAIR LANDING AND CONCRETE FOOTING  
 C. CONSTRUCT PEDESTRIAN WALKWAY CONNECTION BETWEEN SOUTHERN BRIDGE PAVILION AND EXISTING SEPTA NHSL WALKWAY OVERPASS. LIMIT CLOSURE OF PEDESTRIAN ACCESS FROM EXISTING SEPTA NHSL WALKWAY TO NEW PAVILION TO THE GREATEST EXTENT FEASIBLE.
- UPON COMPLETION OF THE NEW WALKWAY CONNECTION, REMOVE TEMPORARY BARRIERS AND IMMEDIATELY NOTIFY SEPTA AND OPEN WALKWAY TO PEDESTRIANS. COMPLETE GROUND LEVEL CONSTRUCTION AND RESTORATION.

### LEGEND

- PROPERTY LINE
- LEGAL RIGHT-OF-WAY LINE
- EXISTING CURB
- EXISTING EDGE OF PAVEMENT
- EXISTING BUILDING
- EXISTING FENCE
- EXISTING RETAINING WALL
- EXISTING SIGN
- EXISTING TREELINE
- EXISTING TREE
- EXISTING RAILROAD TRACKS
- EXISTING WETLANDS
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING STORM SEWER WITH MANHOLE
- EXISTING STORM INLET
- EXISTING WATER SERVICE WITH MANHOLE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING GAS VALVE
- EXISTING UTILITY POLE WITH GUY WIRE
- EXISTING OVERHEAD WIRE
- EXISTING UNDERGROUND ELECTRIC SERVICE WITH MANHOLE
- EXISTING ELECTRIC METER
- EXISTING TRANSFORMER
- EXISTING CABLE SERVICE WITH CABLE BOX
- EXISTING UNDERGROUND TELEPHONE SERVICE WITH MANHOLE
- EXISTING TELEPHONE METER
- EXISTING LIGHT STANDARDS
- EXISTING TRAFFIC SIGNAL MAST ARM
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- PROPOSED DECORATIVE FENCE
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- PROPOSED ADA PARKING SPACE
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- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED TOP OF WALL
- PROPOSED BOTTOM OF WALL
- PROPOSED TOP OF CURB
- PROPOSED BOTTOM OF CURB
- PROPOSED FLUSHED CURB
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY LATERAL
- PROPOSED STORM PIPE
- PROPOSED INLET / YARD DRAIN
- PROPOSED UNDERDRAIN / ROOF DRAIN
- PROPOSED FIRE SERVICE
- PROPOSED WATER SERVICE
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED UNDERGROUND TELECOM
- PROPOSED GAS LINE



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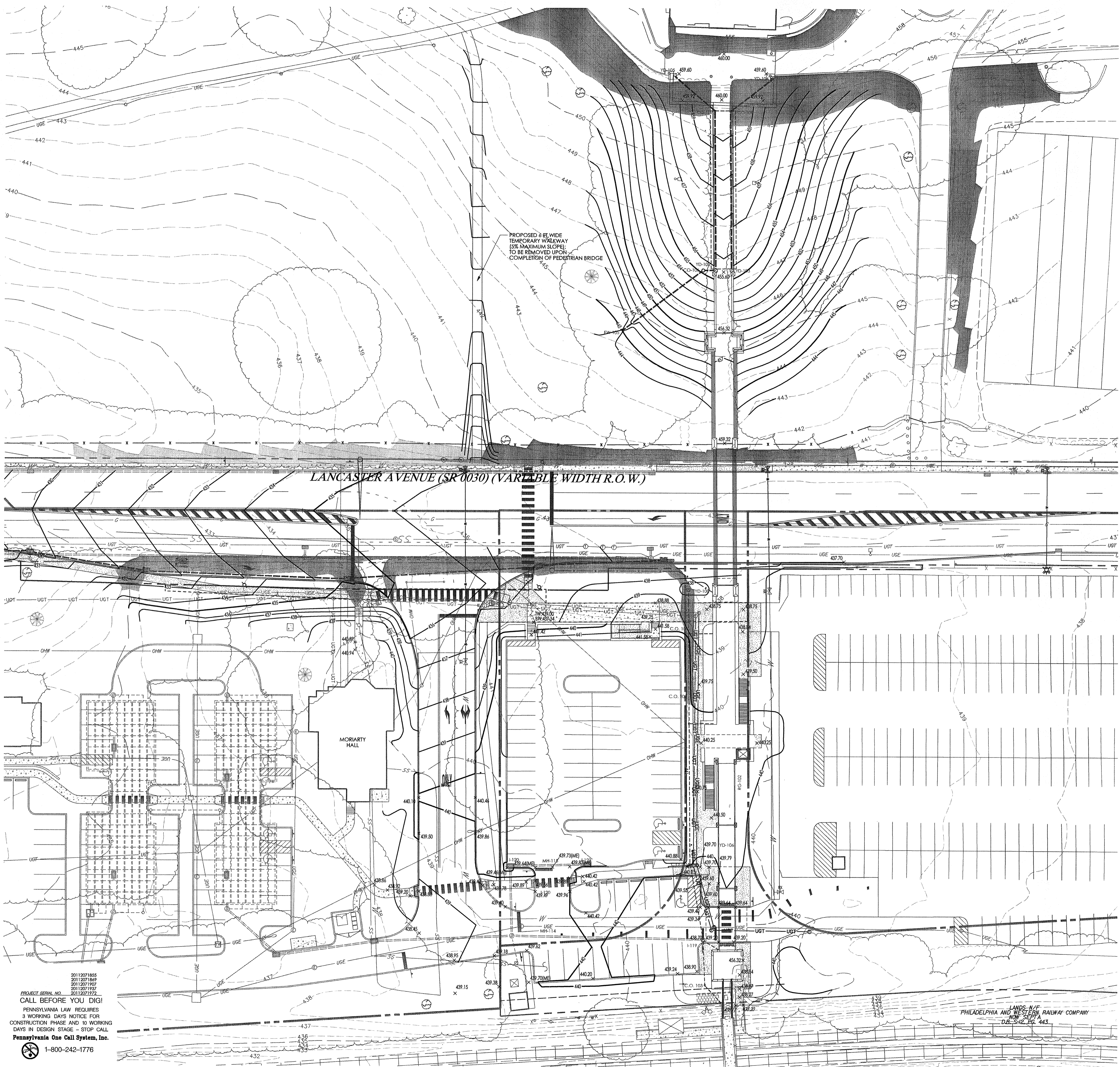
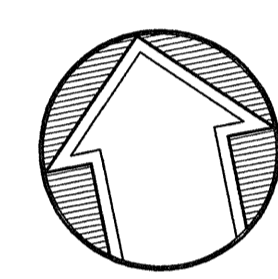
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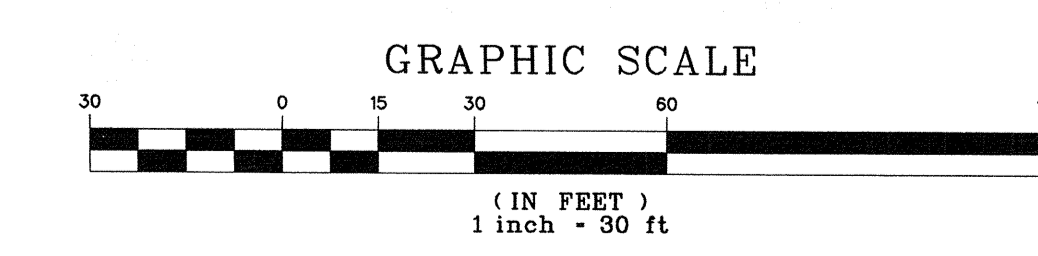
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Scale 1" = 30'  
 Drawn By DWN

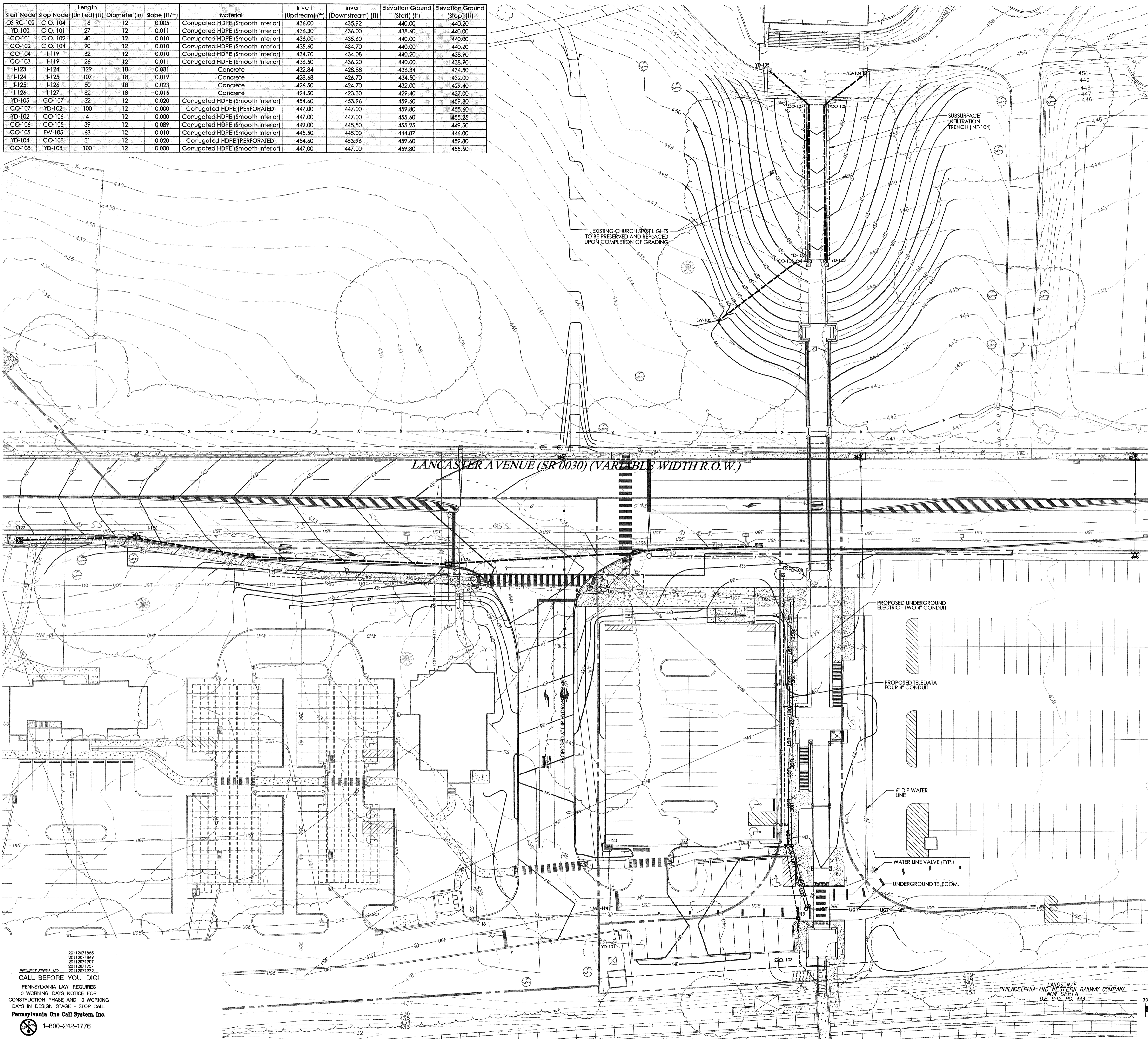
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Sheet No. 5 of 20

Contractor to verify all dimensions in field and inform  
 Architect of any discrepancies before starting work.

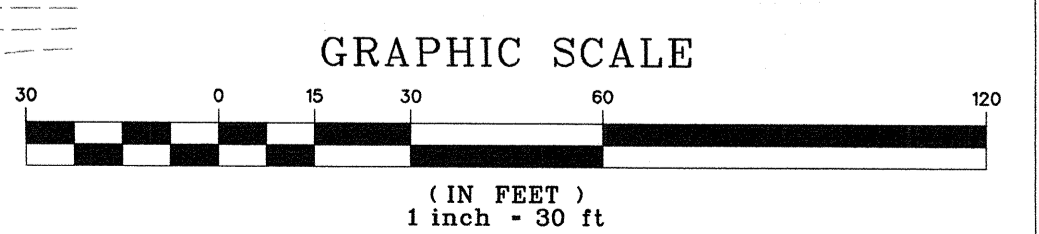


Start Node	Stop Node	Length (Unified) (ft)	Diameter (in)	Slope (ft/ft)	Material	Invert (Upstream) (ft)	Invert (Downstream) (ft)	Elevation Ground (Start) (ft)	Elevation Ground (Stop) (ft)
OS RG-102	C.O. 104	16	12	0.005	Corrugated HDPE (Smooth Interior)	436.00	435.92	440.00	440.20
YD-100	C.O. 101	27	12	0.011	Corrugated HDPE (Smooth Interior)	436.30	436.00	438.60	440.00
CO-101	C.O. 102	40	12	0.010	Corrugated HDPE (Smooth Interior)	436.60	434.70	440.00	440.00
CO-102	C.O. 104	90	12	0.010	Corrugated HDPE (Smooth Interior)	435.60	434.70	440.00	440.20
CO-104	H-119	62	12	0.010	Corrugated HDPE (Smooth Interior)	434.70	434.08	440.20	438.90
CO-103	H-119	26	12	0.011	Corrugated HDPE (Smooth Interior)	436.50	434.20	440.00	438.90
H-123	H-124	129	18	0.031	Concrete	432.84	428.88	434.34	434.50
H-124	H-125	107	18	0.019	Concrete	428.68	426.70	434.50	432.00
H-125	H-126	80	18	0.023	Concrete	426.50	424.70	432.00	429.40
H-126	H-127	82	18	0.015	Concrete	424.50	423.30	429.40	427.00
YD-105	CO-107	32	12	0.020	Corrugated HDPE (Smooth Interior)	454.60	453.96	459.60	459.80
CO-107	YD-102	100	12	0.000	Corrugated HDPE (PERFORATED)	447.00	447.00	459.80	455.60
YD-102	CO-106	4	12	0.000	Corrugated HDPE (Smooth Interior)	447.00	447.00	455.60	455.25
CO-106	CO-105	39	12	0.089	Corrugated HDPE (Smooth Interior)	449.00	445.50	445.50	449.50
CO-105	EW-105	43	12	0.010	Corrugated HDPE (Smooth Interior)	445.50	445.00	444.87	446.00
YD-104	CO-108	31	12	0.020	Corrugated HDPE (PERFORATED)	454.40	453.96	459.60	459.80
CO-108	YD-103	100	12	0.000	Corrugated HDPE (Smooth Interior)	447.00	447.00	459.80	455.60



**LEGEND**

- PROPERTY LINE
- LEGAL RIGHT-OF-WAY LINE
- EXISTING CURB
- EXISTING EDGE OF PAVEMENT
- EXISTING BUILDING
- EXISTING FENCE
- EXISTING RETAINING WALL
- EXISTING SIGN
- EXISTING TREE LINE
- EXISTING TREE
- EXISTING RAILROAD TRACKS
- EXISTING WETLANDS
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING STORM SEWER WITH MANHOLE
- EXISTING STORM INLET
- EXISTING WATER SERVICE WITH MANHOLE
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING GAS VALVE
- EXISTING UTILITY POLE WITH GUY WIRE
- EXISTING OVERHEAD WIRE
- EXISTING UNDERGROUND ELECTRIC SERVICE WITH MANHOLE
- EXISTING ELECTRIC METER
- EXISTING TRANSFORMER
- EXISTING CABLE SERVICE WITH CABLE BOX
- EXISTING UNDERGROUND TELEPHONE SERVICE WITH MANHOLE
- EXISTING TELEPHONE METER
- EXISTING LIGHT STANDARDS
- EXISTING TRAFFIC SIGNAL MAST ARM
- SOILS BOUNDARY LINE
- PROPOSED RIGHT-OF-WAY LINE
- PROPOSED CURB
- PROPOSED EDGE OF PAVEMENT
- PROPOSED BUILDING
- PROPOSED CONCRETE SIDEWALK OR PAD
- PROPOSED DECORATIVE FENCE
- PROPOSED RETAINING WALL
- PROPOSED SIGN
- PROPOSED ADA PARKING SPACE
- PROPOSED DUMPSTER ENCLOSURE WITH DUMPSTER, RECYCLING BINS, SCREEN WALLS AND SCREEN GATE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED SANITARY MAIN
- PROPOSED SANITARY LATERAL
- PROPOSED STORM PIPE
- PROPOSED INLET / YARD DRAIN
- PROPOSED UNDERDRAIN / ROOF DRAIN
- PROPOSED FIRE SERVICE
- PROPOSED WATER SERVICE
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED UNDERGROUND TELECOM
- PROPOSED GAS LINE
- AREAS TO BE CONSTRUCTED UNDER A SEPARATE TOWNSHIP APPLICATION



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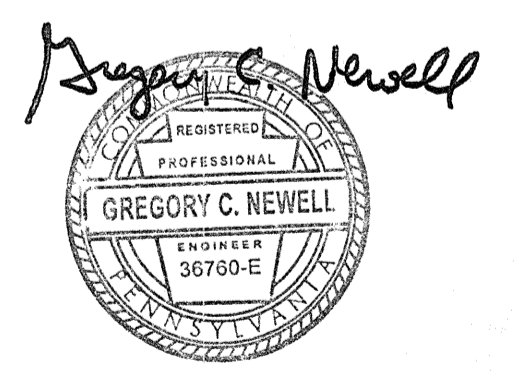
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Zipf Associates Inc.  
25 Bala Avenue, Suite 201  
Bala Cynwyd, PA 19004  
phone: 610-667-1717  
fax: 610-667-0216



RECORD PLAN  
SUBMISSION

Revision #6 October 6, 2015  
Date March 13, 2015  
Title Utility Plan

Scale 1" = 30'  
Drawn By DWN

**C4.1**

Sheet No. 6 of 20

Contractor to verify all dimensions in field and inform  
Architect of any discrepancies before starting work.



**VMA  
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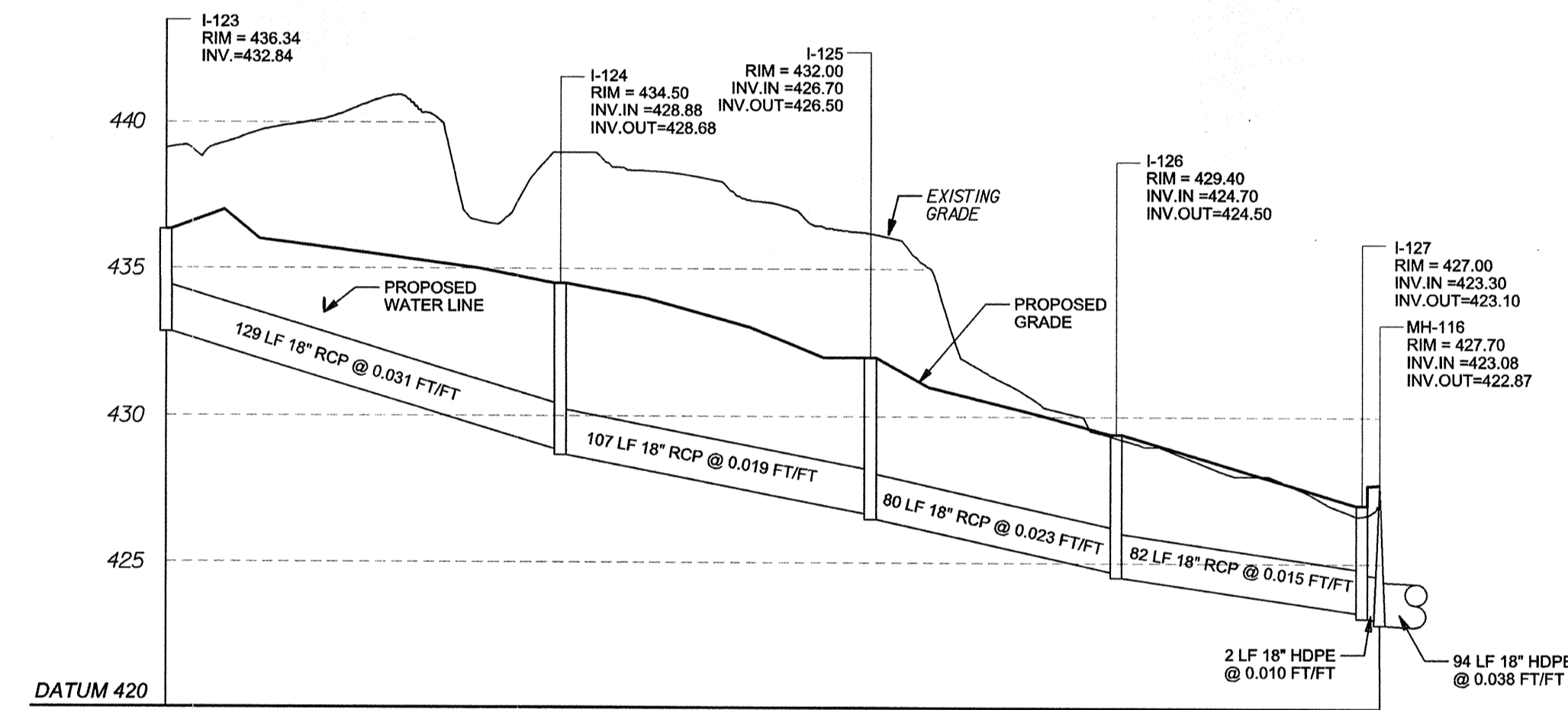
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**STORM PROFILE -  
 I-123 TO MH-116**

SCALE: HORIZONTAL 1" = 50'  
 VERTICAL 1" = 5'

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*Gregory C. Newell*

**RECORD PLAN  
 SUBMISSION**

Revision #6 October 6, 2015  
 Date March 13, 2015  
 Title Utility Profiles

Scale As Noted  
 Drawn By JMS

**C4.2**

Sheet No. 7 of 20

Contractor to verify all dimensions in field and inform  
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**GENERAL CONSERVATION NOTES AND SPECIFICATIONS**

INTENT OF CONSERVATION PROGRAM: THE INTENT OF THIS PROGRAM IS TO PREVENT ACCELERATED EROSION OF SUSCEPTIBLE SOILS DURING THE CONSTRUCTION AND PERMANENT LIFE PERIODS OF THE DEVELOPMENT. THE PROGRAM REQUIRES RETENTION OF ALL SEDIMENTS ON THE CONSTRUCTION SITE TO MINIMIZE THE IMPACT OF DEVELOPMENT ON EXISTING STREAMS AND ADJACENT PROPERTY OWNERS. THESE OBJECTIVES WILL BE ACHIEVED BY MINIMIZING THE EXPOSURE TIME OF POTENTIALLY ERODIBLE SOILS TO RUNOFF AND INSTALLATION OF THE TEMPORARY CONSTRUCTION. THE INTENT OF THIS PROGRAM SHOULD BE UNDERSTOOD AND IMPLEMENTED THROUGHOUT THE ENTIRE DEVELOPMENT. THE VARIOUS CONSTRUCTION TRADES SHOULD BE APPRAISED OF THIS PROGRAM AND DIRECTED TO PREVENT UNDOE DISTURBANCE OF PREPARED AND PROTECTED SURFACES.

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

**SEEDING & MULCHING SPECIFICATIONS**

- LIVE SEED PERCENTAGE SHALL BE 85% OR GREATER
- TEMPORARY: SEEDING SHALL BE COMMON RYE GRASS APPLIED AT 45 LBS. PER ACRE. LIMING TO BE APPLIED AT 1 TON/ACRE. 50-50 FERTILIZER TO BE APPLIED AT 1000 LBS/ACRE. HAY OR STRAW MULCH TO BE APPLIED AT 3 TONS/ACRE
- PERMANENT: SEEDING SHALL BE 15% KENTUCKY BLUEGRASS, 35% KENTUCKY 31 FESCUE, 25% CHEWINGS FESCUE, 15% PERENNIAL RYE GRASS, AND 10% RECLAIMED REDTOP AT A RATE OF 40 LBS. PER ACRE. LIMING TO BE APPLIED AT 3 TONS/ACRE. 10-20-30 FERTILIZER AND REMEDIAL MAINTENANCE OR VEGETATIVE CLEARING IN AREAS OUTSIDE OF THE DELINEATED AREAS TO BE DISTURBED.

THE NON-GERMINATING PERIODS ARE BETWEEN 6/15 THROUGH 8/15 AND 9/30 THROUGH 4/15. AREAS DISTURBED DURING THESE PERIODS MUST BE LIMED, FERTILIZED, SEEDED, AND MULCHED IMMEDIATELY FOLLOWING THE END OF THOSE PERIODS. TOPSOIL TAKEN FROM CONSTRUCTION AREAS SHALL BE SEEDDED WITH VEGETATIVE COVER AND STOCKPILES FOR RE-USE IN FINISH GRADING. THERE IS TO BE NO EARTH DISTURBANCE OR VEGETATIVE CLEARING IN AREAS OUTSIDE OF THE DELINEATED AREAS TO BE DISTURBED.

**MAINTENANCE PROGRAM FOR TEMPORARY SEDIMENTATION CONTROL STRUCTURES**

MAINTENANCE OF ALL TEMPORARY SEDIMENTATION CONTROL STRUCTURES SHALL BE THE RESPONSIBILITY OF THE DEVELOPER AND AS STATED BELOW:

- SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH ONE-HALF THE EFFECTIVE HEIGHT OF COMPOST FILTER SOCKS.
- SEDIMENT MUST BE REMOVED FROM ROCK FILTERS WHEN COLLECTED SEDIMENT BEGINS TO AFFECT THE FILTER'S FUNCTION.
- INLET PROTECTION FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RAINFALL EVENT. BAGS SHALL BE EMPLOYED 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.
- SEDIMENT REMOVED FROM THE FACILITIES MAY BE REINCORPORATED INTO THE SITE'S EARTHWORK AS FILL OR TAKEN TO A SAFE, APPROVED LOCATION. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENTATION CONTROLS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS AND CONTROLS AFTER EACH STORM EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE, RESEEDING, RE MULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY.

**MAINTENANCE OF TEMPORARY SEDIMENTATION CONTROL STRUCTURES**

MAINTENANCE OF ALL TEMPORARY SEDIMENTATION CONTROL STRUCTURES SHALL BE IN ACCORDANCE WITH THESE PLANS AND THE EROSION AND SEDIMENT CONTROL NARRATIVE". INSPECTION AND MAINTENANCE OF ALL FACILITIES SHALL BE MADE AFTER EACH RAIN STORM EVENT AND ON A WEEKLY BASIS.

**SEDIMENT DISPOSAL:**

SLT REMOVED FROM TEMPORARY SEDIMENT CONTROL STRUCTURES SHALL BE DISPOSED OF ON-SITE IN LANDSCAPED AREAS LOCATED OUTSIDE OF FLOOD PLAINS, WETLANDS, STEEP SLOPES, AND DRAINAGE SWALES. AREAS OF SEDIMENT DISPOSAL SHALL BE CONSIDERED C.V.A. ALL SEDIMENT CATEGORIZED AS CONTAMINATED SHALL BE DISPOSED OF PER THE SOIL MANAGEMENT NOTES.

**DUST CONTROL:**

AND OTHER PARTICULATES SHALL BE KEPT WITHIN TOLERABLE LIMITS BY USING WATER. APPLICATION SHALL BE AS NEEDED OR AS DIRECTED BY THE TOWNSHIP ENGINEER OR THE CONSERVATION DISTRICT.

**CRITICAL VEGETATION AREAS (C.V.A.):**

CRITICAL VEGETATION AREAS ARE TO BE GRADED, HYDROSEEDDED AND MULCHED WITHIN 10 DAYS OF THE BEGINNING OF EROSION. IN GENERAL, CRITICAL VEGETATION AREAS ARE DEFINED AS CUT SLOPES STEEPER THAN 3:1, ALL FILL SLOPES STEEPER THAN 4:1 AND IN ALL DRAINAGE SWALES.

**OTHER BMPs:**

- SEDIMENT SHALL BE REMOVED FROM STORM WATER INLET PROTECTION AFTER EACH RUNOFF EVENT.

**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 CONTROLLED, AND MAINTAINED TO EFFECTIVELY MINIMIZE POLLUTION TO THE WATERS OF THIS COMMONWEALTH. A WRITTEN REPORT OF EACH INSPECTION SHALL UTILIZE PADEP FORM 5130-FW-BW#0085 DATED FEBRUARY 2012 AND BE KEPT ON SITE AT ALL TIMES AND INCLUDE AT A MINIMUM:

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

**NONCOMPLIANCE REPORTING**

WHERE E&S, PCSM OR PFC 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:

- ANY CONDITION ON THE PROJECT SITE WHICH MAY ENDANGER PUBLIC HEALTH, SAFETY, OR THE ENVIRONMENT, OR INVOLVE INCIDENTS THAT CAUSE OR THREATEN POLLUTION.
- THE PERIOD OF NONCOMPLIANCE, INCLUDING EXACT DATES AND TIMES AND/OR ANTICIPATED TIME WHEN THE ACTIVITY WILL RETURN TO COMPLIANCE.
- STEPS BEING TAKEN TO REDUCE, ELIMINATE, AND PREVENT RECURRENT OF THE NON-COMPLIANCE AND WHEN THE ACTIVITY WILL RETURN TO COMPLIANCE.
- 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. THE RESTORED BMPs OR ALTERNATIVE TREATMENT SHALL BE AT LEAST AS EFFECTIVE AS THE ORIGINAL BAMS.

**TERMINATION OF COVERAGE**

NOT: UPON PERMANENT STABILIZATION OF EARTH DISTURBANCE ACTIVITIES ASSOCIATED WITH THIS PERMIT 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 SECTION 1.C. SUCRATORY REQUIREMENTS OF THIS PERMIT. ALL LETTERS CERTIFYING DISCHARGE TERMINATION ARE TO BE SENT TO THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT. NOT FORMS 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 ACKNOWLEDGMENT FROM THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT 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, 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 ENDORSED 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.

**SOIL EROSION AND SEDIMENTATION CONTROL NOTES**

- ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN. A COPY OF THE APPROVED E&S PLAN (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED E&S PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
- AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF IMPLEMENTATION OF THE PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRE-CONSTRUCTION MEETING. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE CALLED 811 TO LOCATE ANY EXISTING UNDERGROUND UTILITIES.
- ALL EARTH DISTURBANCE ACTIVITIES SHALL BE PROCEEDED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
- AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
- CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPs SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
- AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
- TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAP(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT WILL BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER. STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET.
- IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.
- BEFORE INITIATING ANY REVISION 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 DELAWARE COUNTY CONSERVATION DISTRICT. THE OPERATOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.
- ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 28 PA. CODE 260.1 ET SEQ. 271.1, AND 281 ET SEQ. NO BUILDING MATERIALS SHALL BE BURIED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FILED TO BE IMPLEMENTED PRIOR TO ANY FILL OPERATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
- ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDERGROUND UTILITIES.
- VEHICLES AND EQUIPMENT MAY NEITHER ENTER NOR EXIT DIRECTLY FROM THE PROJECT SITE ONTO WEST LANCASTER AVENUE.
- UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENTATION BMPs MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENTATION BMPs AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL SITE INSPECTIONS, THE COMPLIANCE INSPECTIONS, AND THE DATE, TIME, AND NAME OF THE PERSON CONDUCTING AN INSPECTION WILL BE KEPT ON SITE AT ALL TIMES AND MADE AVAILABLE TO THE DISTRICT UPON REQUEST. ALL PREVENTATIVE MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, RE MULCHING, AND RENETTING, MUST BE PERFORMED IMMEDIATELY IF EROSION AND SEDIMENTATION BMPs FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPs OR MODIFICATIONS OF THOSE INSTALLED WILL BE NEEDED. FAILURE TO MAINTAIN OR PREVENT THE REOCCURRENCE OF THE NON-COMPLIANCE.
- THE TIME FRAME TO CORRECT THE NON-COMPLIANCE, INCLUDING THE EXACT DATES WHEN THE ACTIVITY WILL RETURN TO COMPLIANCE.
- AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPs MUST BE REMOVED. AREAS DISTURBED DURING THEIR REMOVAL OF THE BMPs MUST BE STABILIZED IMMEDIATELY.
- SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE SITE IMMEDIATELY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEEP INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
- ALL SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
- 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. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 4 INCHES OF TOPSOIL.
- ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
- ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
- FILL MATERIALS SHALL BE FREE OF BRUSH, ROOTS, SOIL, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
- FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
- SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
- ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETTED ACCORDING TO THE STANDARDS OF THIS PLAN. EROSION CONTROL BLANKET IS REQUIRED TO STABILIZE ALL SLOPES 3:1 AND GREATER. ALL EROSION CONTROL BLANKET SHALL BE NORTH AMERICAN GREEN 575 OR APPROVED EQUAL. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
- PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
- E&S BMPs SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
- UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL OF THE E&S BMPs.
- AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPs MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPs. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPs SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO PREVENT RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
- UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
- FAILURE TO CORRECTLY INSTALL E&S BMPs, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPs MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEYOND THOSE SPECIFIED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO \$10,000 PER DAY IN CIVIL PENALTIES, UP TO \$10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO \$25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.
- SHOULD ANY MEASURES CONTAINED WITHIN THIS PLAN PROVE INCAPABLE OF ADEQUATELY REMOVING SEDIMENT FROM ON-SITE FLOWS PRIOR TO DISCHARGE OR STABILIZING THE SURFACES INVOLVED, ADDITIONAL MEASURES MUST BE IMMEDIATELY IMPLEMENTED BY THE DEVELOPER TO ELIMINATE ALL SUCH PROBLEMS. THE DELAWARE COUNTY CONSERVATION DISTRICT MUST BE NOTIFIED BY THE DEVELOPER OF ANY AND ALL CHANGES OR MODIFICATIONS TO THE CONSTRUCTION.
- THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISION OF APPENDIX 64. EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART 1. DEPARTMENT OF ENVIRONMENTAL PROTECTION SUB-PART C. PROTECTION OF NATURAL RESOURCES, CHAPTER 102 REGULATIONS.
- THE PROJECT'S NEAREST SURFACE WATER IS VALLEY RUN, THE CHAPTER 93 CLASSIFICATION IS CWF1F. COLD WATER FISHES / MIGRATORY FISHES WATERWAY.
- CONCRETE WASH WATER SHALL BE HANDLED IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE WATERS OR GROUNDWATER SYSTEMS.
- 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 MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, STILL QUALIFIES AS CLEAN FILL PROVIDED THAT THE FILL MATERIAL CONTAINS CONCENTRATIONS OF REGULATED SUBSTANCES THAT ARE BELOW THE RESIDENTIAL LIMITS IN TABLES FP-1g AND FP-1d FOUND IN THE DEPARTMENT'S POLICY "CLEAN 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 PROPERTY OWNERS. THE FULL COPY OF PROPERTY RECORDS THAT CAN BE FOUND AT THE END OF THESE INSTRUCTIONS ON THE DEPARTMENT'S WEBSITE. ENVIRONMENTAL DUE DILIGENCE: THE APPLICANT MUST PERFORM DUE DILIGENCE TO DETERMINE IF THE FILL MATERIALS ASSOCIATED WITH THE PROJECT QUALIFY AS CLEAN FILL. ENVIRONMENTAL DUE DILIGENCE: INVESTIGATIVE MEASURES, INCLUDING, BUT NOT LIMITED TO: VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP RECORDS, ENVIRONMENTAL USE HISTORY, SANDBOX TESTING, 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 AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX C OF THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".

**GENERAL NOTES FOR UTILITY CONSTRUCTION**

- EXCAVATED MATERIAL SHOULD BE STAGED ON THE UPSTREAM SIDE OF A TRENCH.
- THE DAILY EXTENT OF TRENCHING SHOULD NOT EXCEED WHAT CAN BE BACKFILLED AND STABILIZED IN ONE WORKING DAY.
- LIMIT ADJACENT CLEARING AND GRUBBING OPERATIONS TO A DISTANCE EQUAL TO TWO TIMES THE LENGTH OF PIPE INSTALLATION THAT CAN BE COMPLETED IN ONE DAY.
- WORK CREWS AND EQUIPMENT FROM TRENCHING, PLACEMENT OF PIPE, AND BACKFILLING WILL BE SEPARATE AND SEPARATE FROM CLEARING AND GRUBBING AND SITE RESTORATION AND STABILIZATION OPERATIONS.
- 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.
- ON THE DAY FOLLOWING PIPE PLACEMENT AND TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS AND IMMEDIATELY STABILIZED.
- SOILS EXCAVATED FROM EXISTING SURFACE LAYER SHOULD BE STOCKPILED SEPARATELY AND RETURNED AS FINAL SURFACE LAYER FOLLOWING TRENCH BACKFILLING.

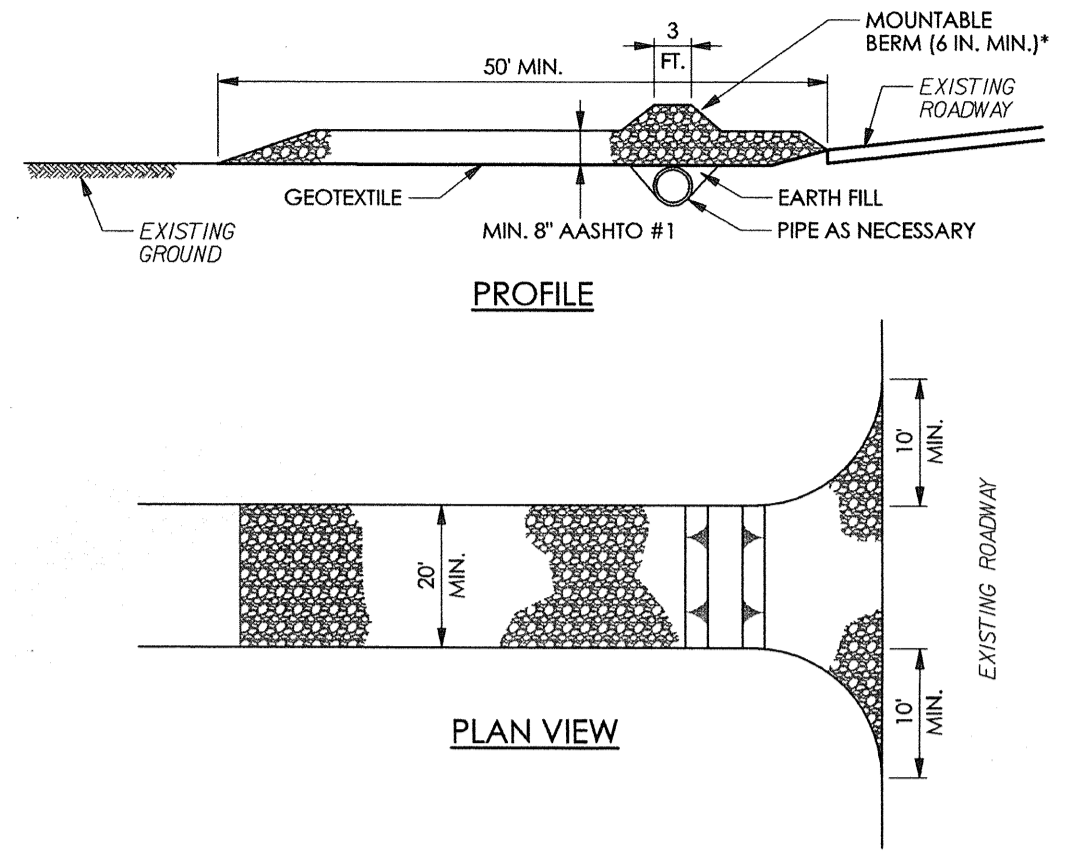
**ANTICIPATED E&S BMP RELATED CONSTRUCTION WASTES AND DISPOSAL PROCEDURES**

SEDIMENT: SLT REMOVED FROM TEMPORARY SEDIMENT CONTROL STRUCTURES SHALL BE DISPOSED OF ON-SITE IN LANDSCAPED AREAS LOCATED OUTSIDE OF FLOOD PLAINS, WETLANDS, STEEP SLOPES, AND DRAINAGE SWALES. SLT AND SEDIMENT CATEGORIZED AS CONTAMINATED SHALL BE DISPOSED OF PER THE SOIL MANAGEMENT NOTES.

TRASH & LITTER: TRASH AND LITTER SHALL BE REMOVED FROM EROSION AND SEDIMENTATION CONTROL BMPs AND DISPOSED OF IN APPROPRIATE TRASH RECEPTACLE.

CONCRETE WASH-WATER: CONCRETE WASH-WATER SHALL BE DISPOSED OF IN THE LOCATION SHOWN ON-SITE. CONCRETE WASH-WATER SOLIDRES SHOULD BE DISPOSED OF OFF-SITE IN AN APPROVED MANNER.

NOTE: ANY APPLICABLE MATERIAL SHALL BE RECYCLED IN ACCORDANCE TO THE APPROPRIATE REGULATIONS.



\* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

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

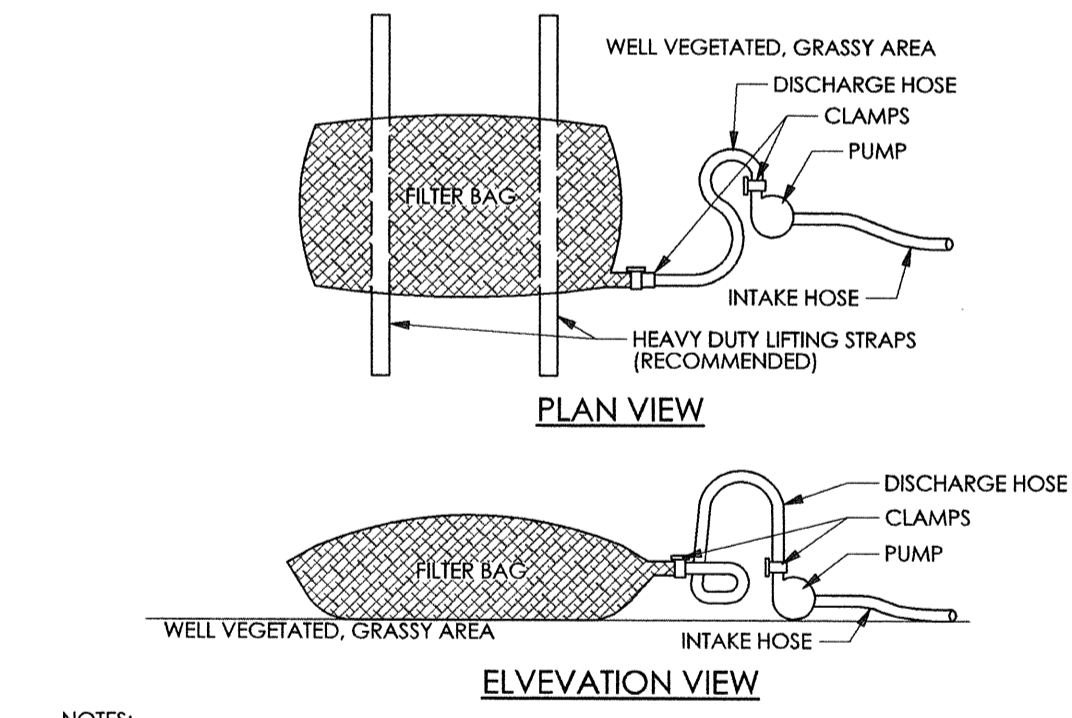
RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CURBVERT 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 OF ROCK WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SWALES, CURBETS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

**STANDARD CONSTRUCTION DETAIL #3-1 ROCK CONSTRUCTION ENTRANCE**

NOT TO SCALE



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-4832	2005 LB
PUNCH TENSILE	ASTM D-4833	2005 LB
MULLEN BURST	ASTM D-3784	350 PSI
UV RESISTANCE	ASTM D-4355	70%
ACQ. & RETAINED	ASTM D-4876	80 %IVE

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

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

NO DOWNSLOPE SEDIMENT BARRIERS ARE REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR BY 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 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

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

**STANDARD CONSTRUCTION DETAIL #3-16 PUMPED WATER FILTER BAG**

NOT TO SCALE

**STANDARD CONSTRUCTION DETAIL #4-6 ROCK FILTER OUTLET**

NOT TO SCALE





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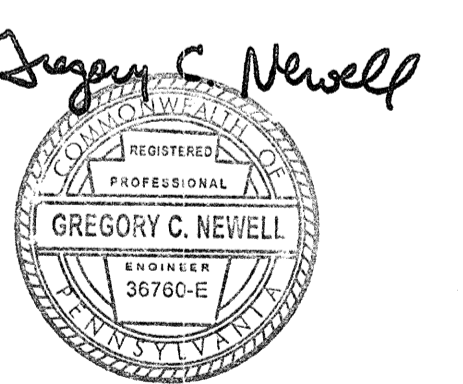
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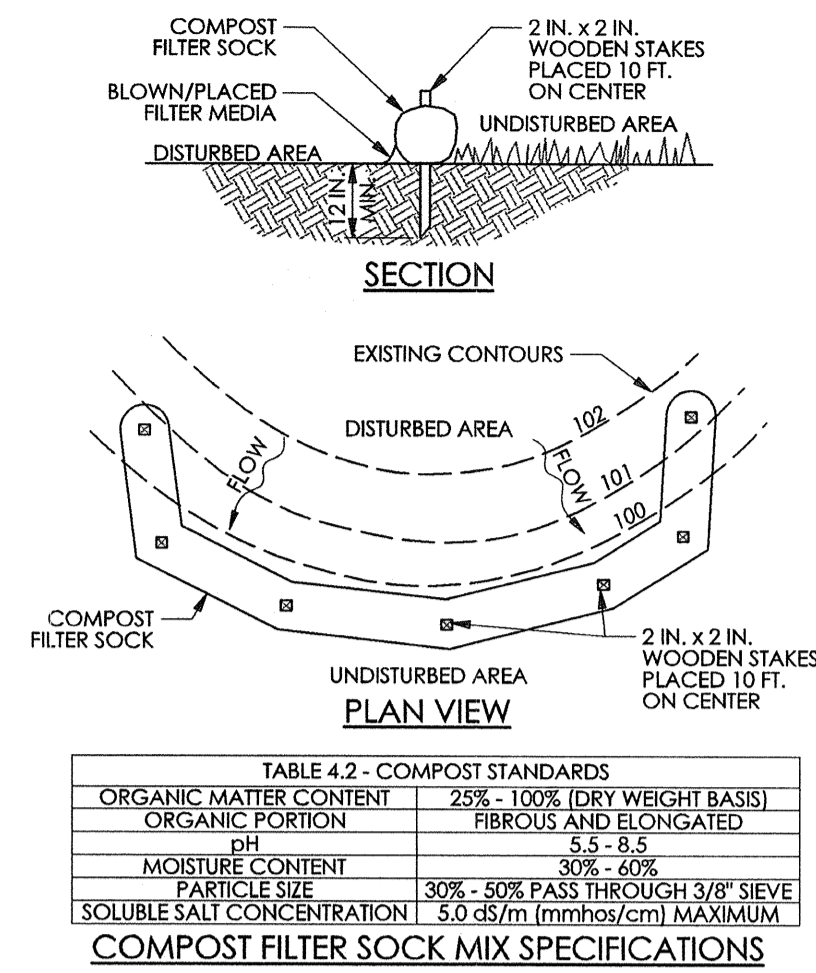
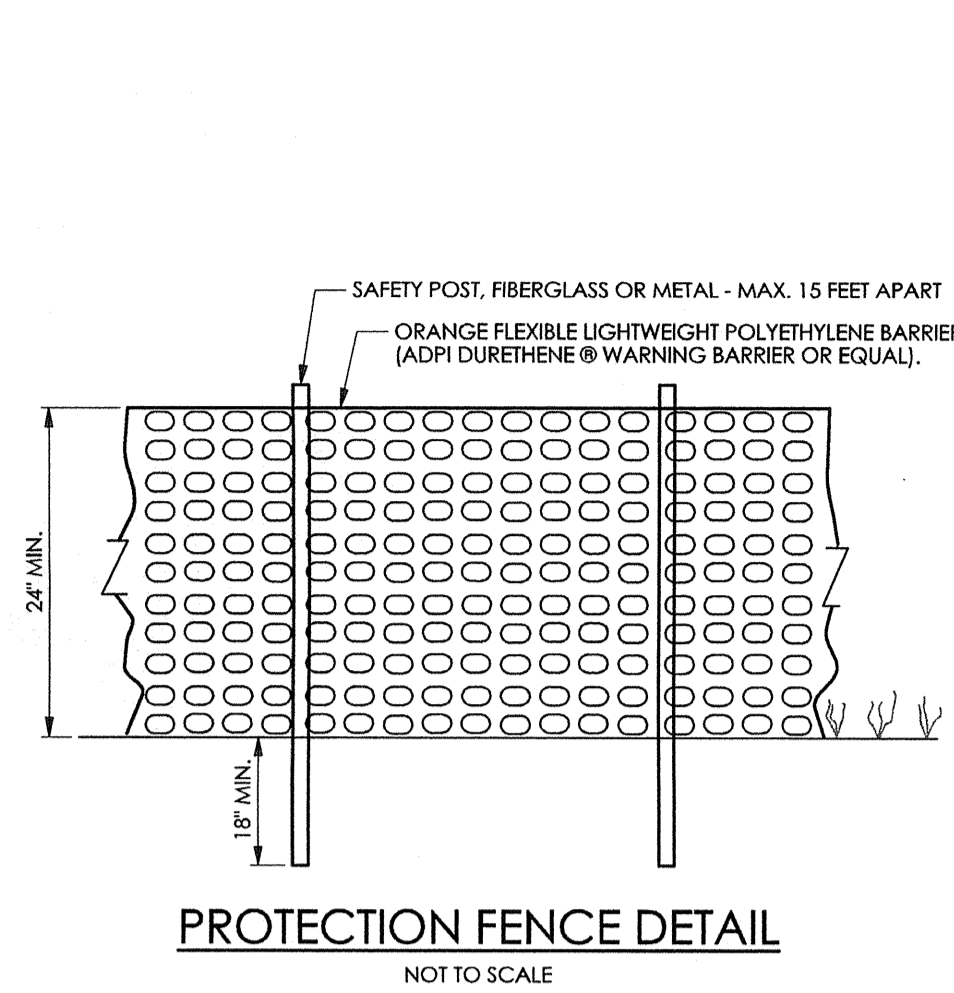


RECORD PLAN  
SUBMISSION  
Revision #6 October 6, 2015  
Date March 13, 2015  
Title Erosion & Sedimentation  
Control Detail Sheet  
Scale N.T.S.  
Drawn By DWN

## C5.3

Sheet No. 10 of 20

Contractor to verify all dimensions in field and inform Architect of any discrepancies before starting work.



NOTES:

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

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

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

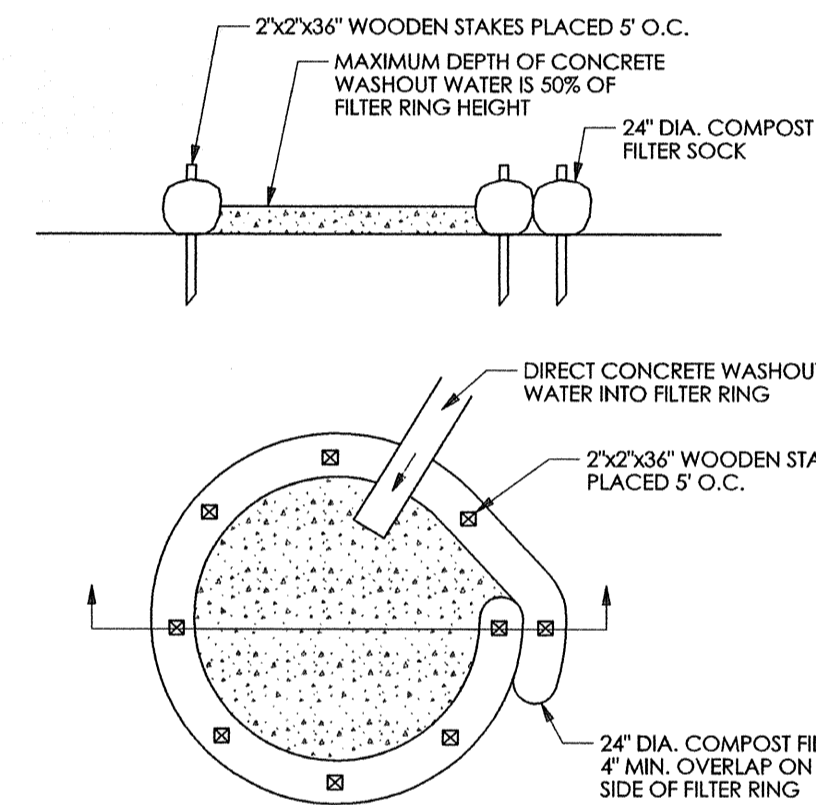
BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

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

WHERE SOCKS ARE PLACED ON PAVED SURFACES, CONCRETE BLOCKS SHOULD BE USED IMMEDIATELY DOWNSLOPE OF THE SOCKS (AT THE SAME INTERVALS RECOMMENDED FOR THE STAKES) TO HELP HOLD THE SOCK IN PLACE.

### STANDARD CONSTRUCTION DETAIL #4-1 COMPOST FILTER SOCK

NOT TO SCALE

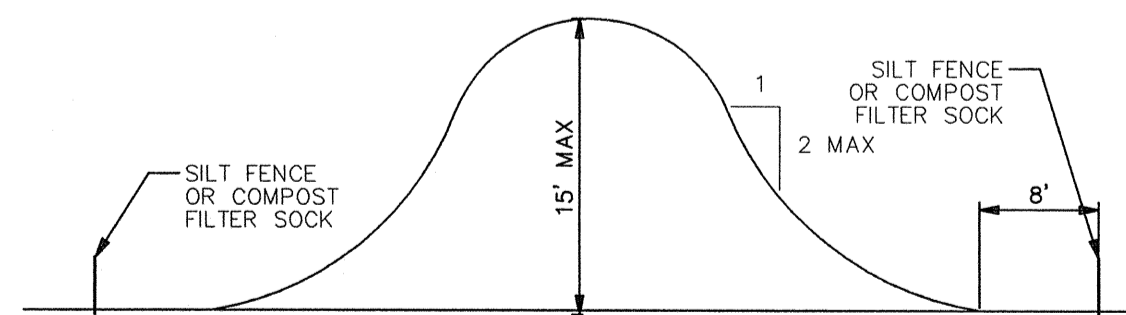


NOTES:

- A SUITABLE IMPERVIOUS GEO-MEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING THE SOCKS.
- INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE.
- 18" DIAMETER FILTER SOCKS MAY BE STACKED ONTO DOUBLE 24" DIAMETER SOCKS IN PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT.
- ALL CONCRETE WASHOUT FACILITIES SHOULD BE INSPECTED DAILY. DAMAGED OR LEAKING WASHOUTS SHOULD BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY.

### CONTROLLED NON-DISCHARGE CONCRETE WASH OUT

NOT TO SCALE



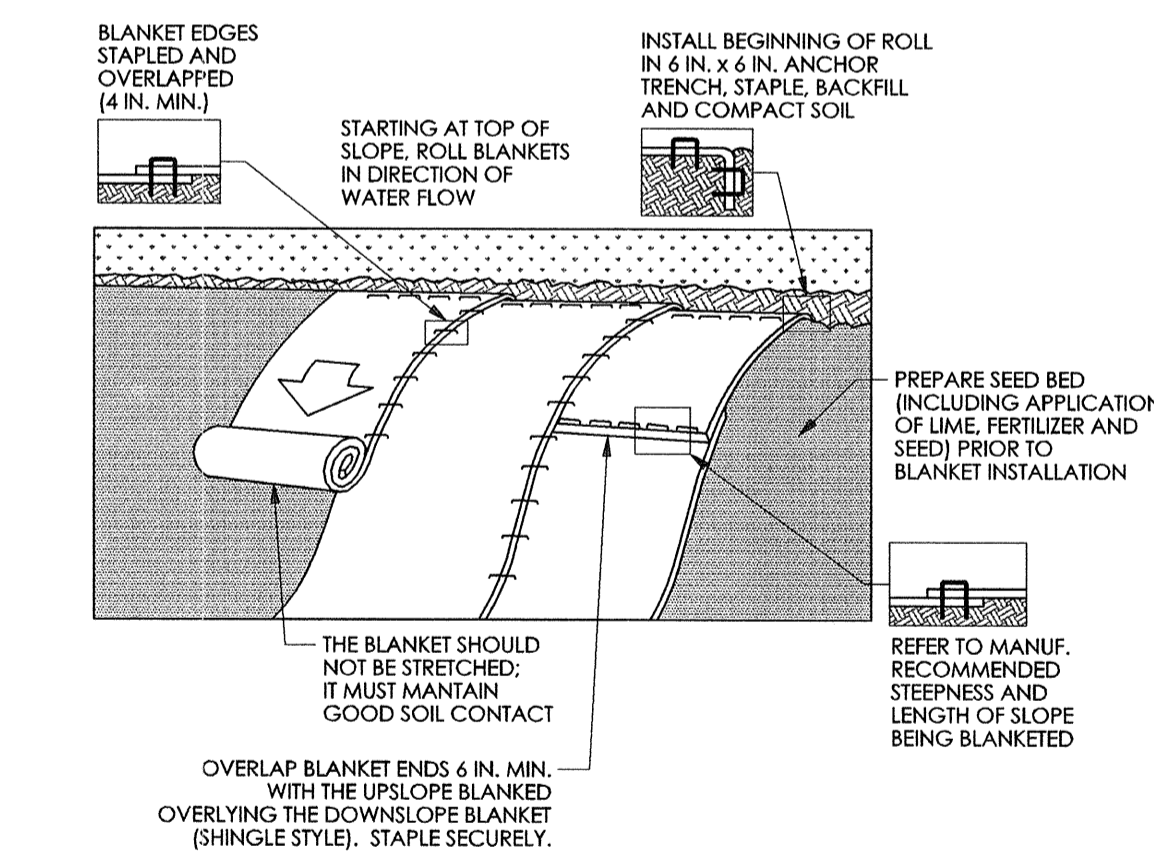
### TYPICAL SOIL STOCKPILE CROSS SECTION

NOT TO SCALE

NOTES:

SILT FENCE MUST COMPLETELY ENCLOSE STOCKPILE

TOPSOIL SHALL NOT BE REMOVED FROM THE DEVELOPMENT SITE OR USED AS FILL. TOPSOIL SHALL BE REMOVED FROM THE AREAS OF CONSTRUCTION AND STORED SEPARATELY. THE TOPSOIL SHALL BE STABILIZED TO MINIMIZE EROSION DURING STORAGE. UPON COMPLETION OF CONSTRUCTION, THE TOPSOIL SHALL BE UNIFORMLY REDISTRIBUTED ON THE SITE.



NOTES:

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

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

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

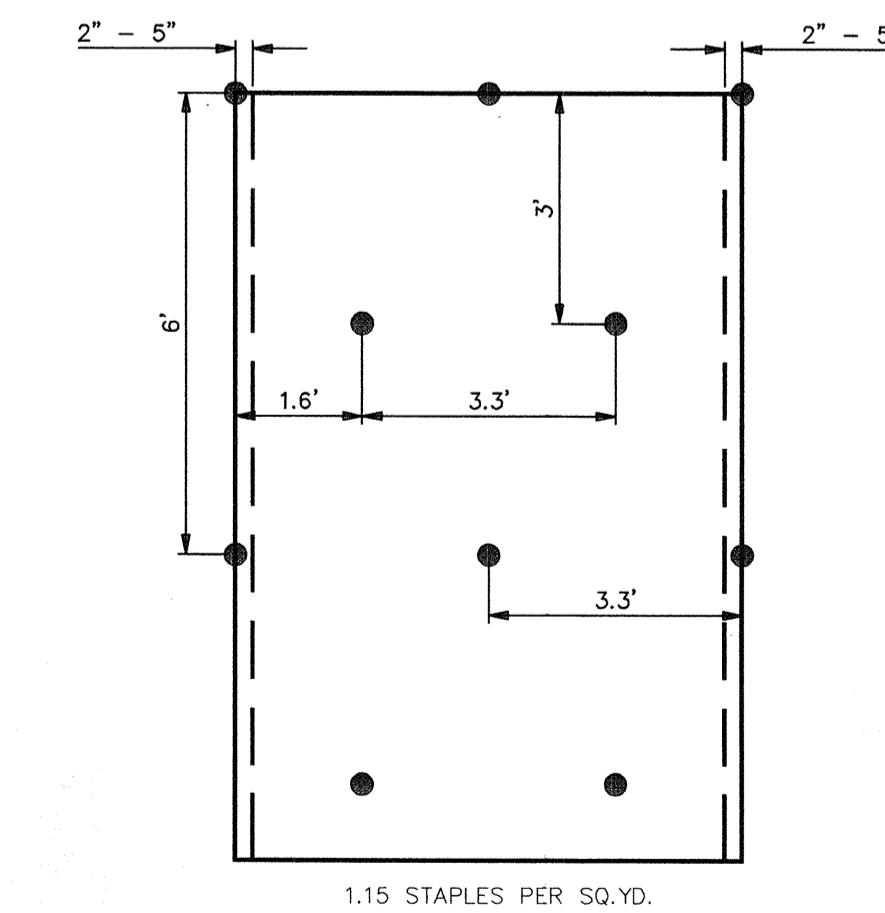
BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

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

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

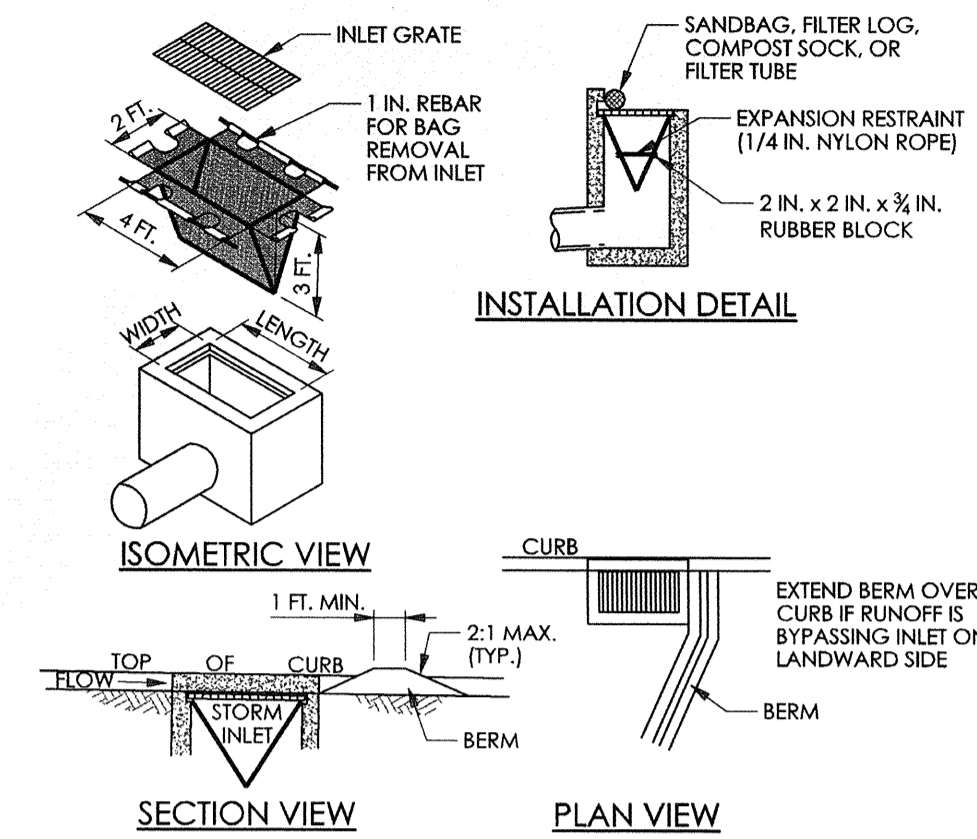
### STANDARD CONSTRUCTION DETAIL #11-1 EROSION CONTROL BLANKET INSTALLATION

NOT TO SCALE



### EROSION CONTROL BLANKET STAPLE PATTERN

NOT TO SCALE



NOTES:

MAXIMUM DRAINAGE AREA = 1/2 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 SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. SIX INCH MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT.

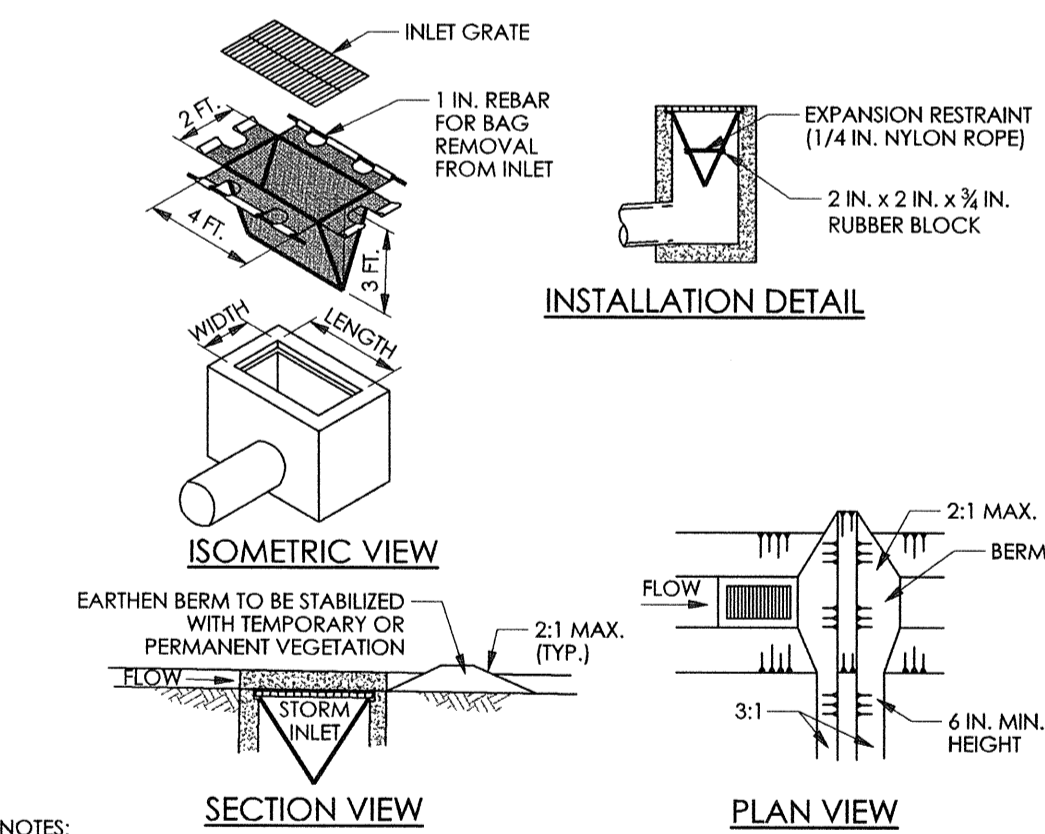
AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS. A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPLOYED 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.

### STANDARD CONSTRUCTION DETAIL #4-15 FILTER BAG INLET PROTECTION - TYPE C INLET

NOT TO SCALE



NOTES:

MAXIMUM DRAINAGE AREA = 1/2 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.

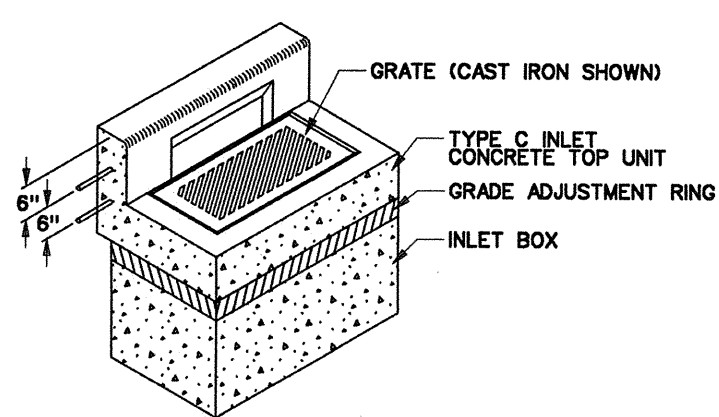
INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPLOYED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED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

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

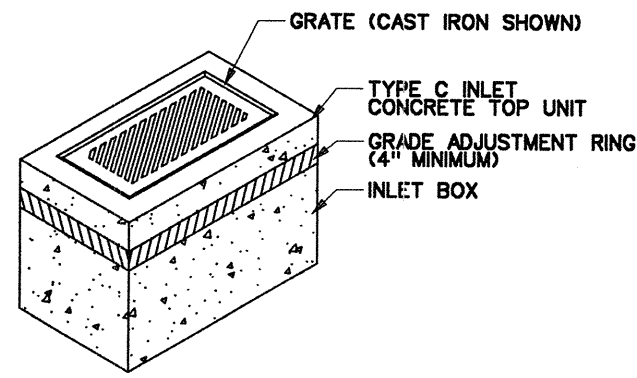
### STANDARD CONSTRUCTION DETAIL #4-16 FILTER BAG INLET PROTECTION - TYPE M INLET

NOT TO SCALE

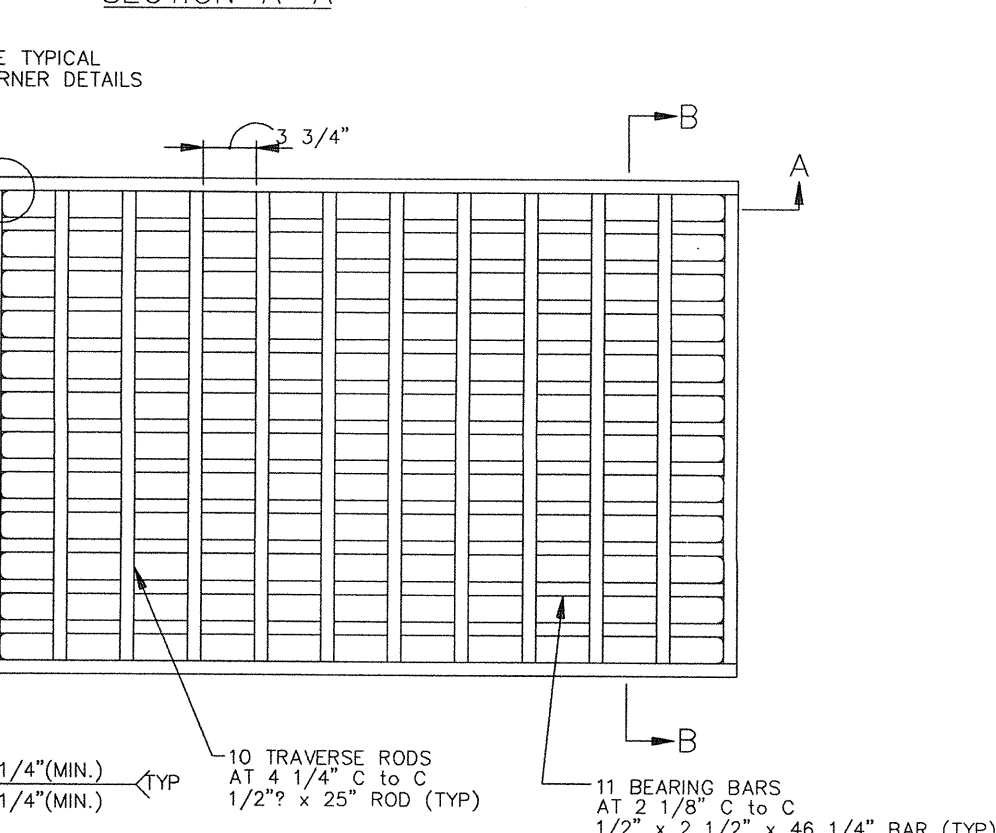
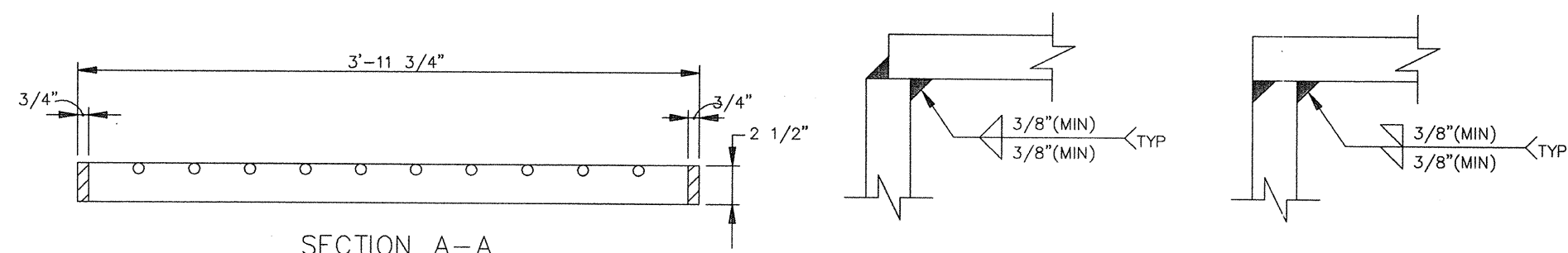




**TYPE C INLET**  
N.T.S. (SEE PENN. D.O.T. RC-34)

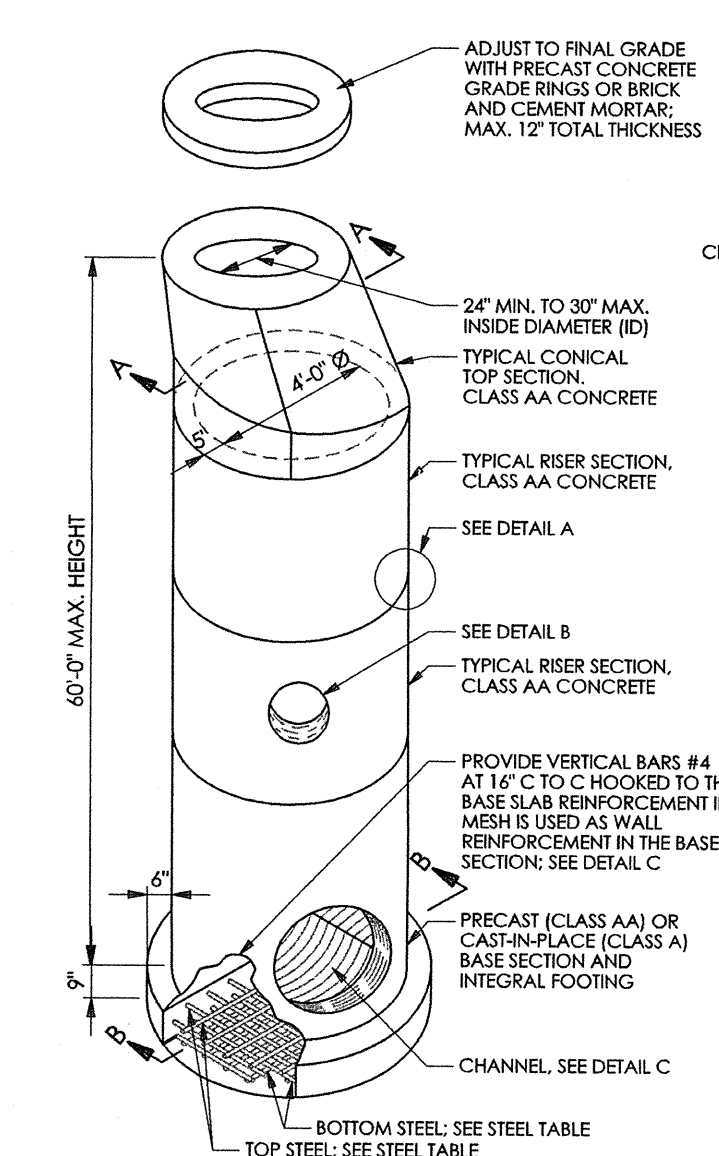


**TYPE M INLET**  
N.T.S. (SEE PENN. D.O.T. RC-34)



**BICYCLE SAFE GRATE**  
N.T.S.

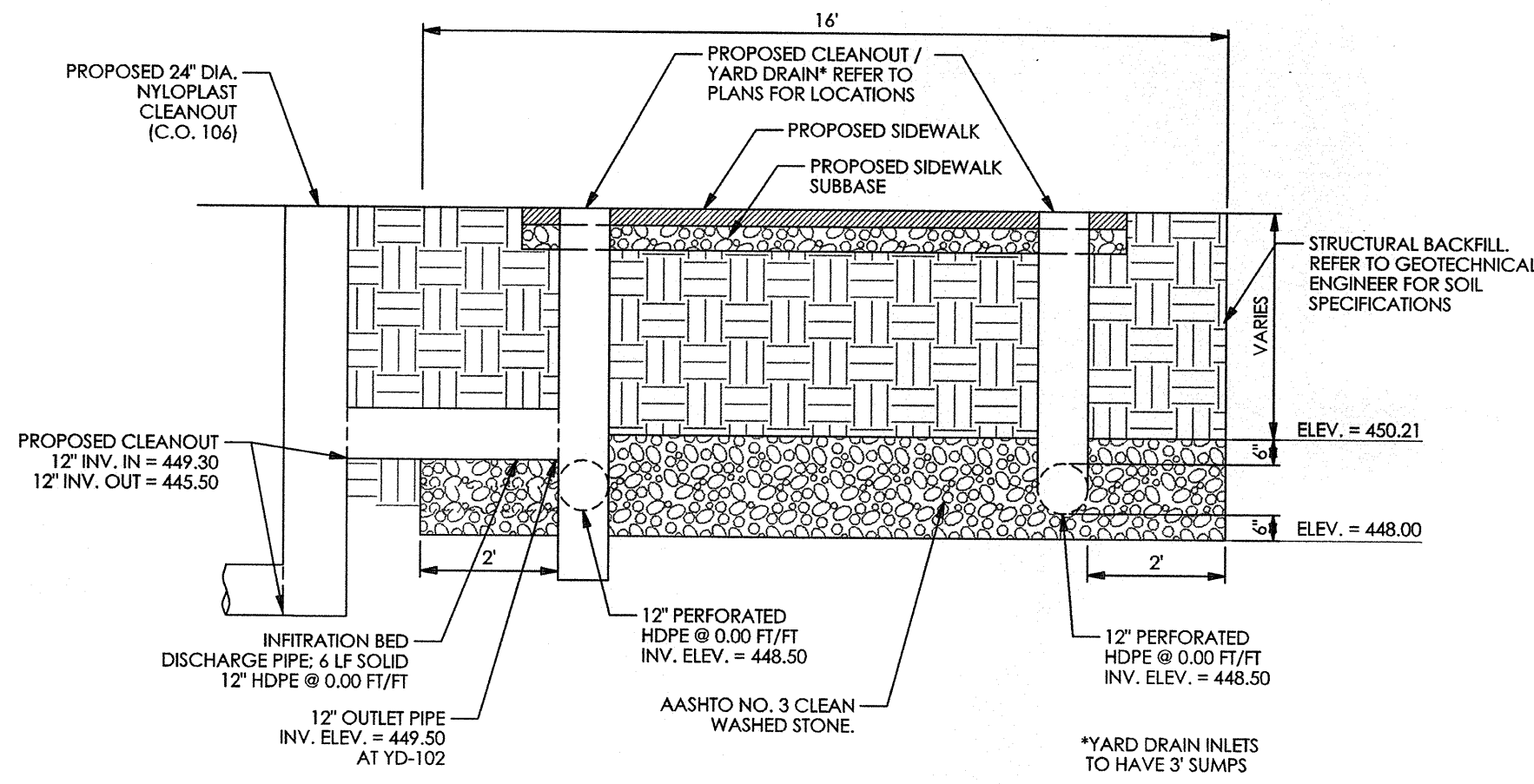
NOTE:  
STEEL GRATE TO BE USED IN ROADWAY SUMP AND YARD INLETS ONLY. ALL OTHER INLETS ARE TO HAVE CAST IRON VANE GRATES.



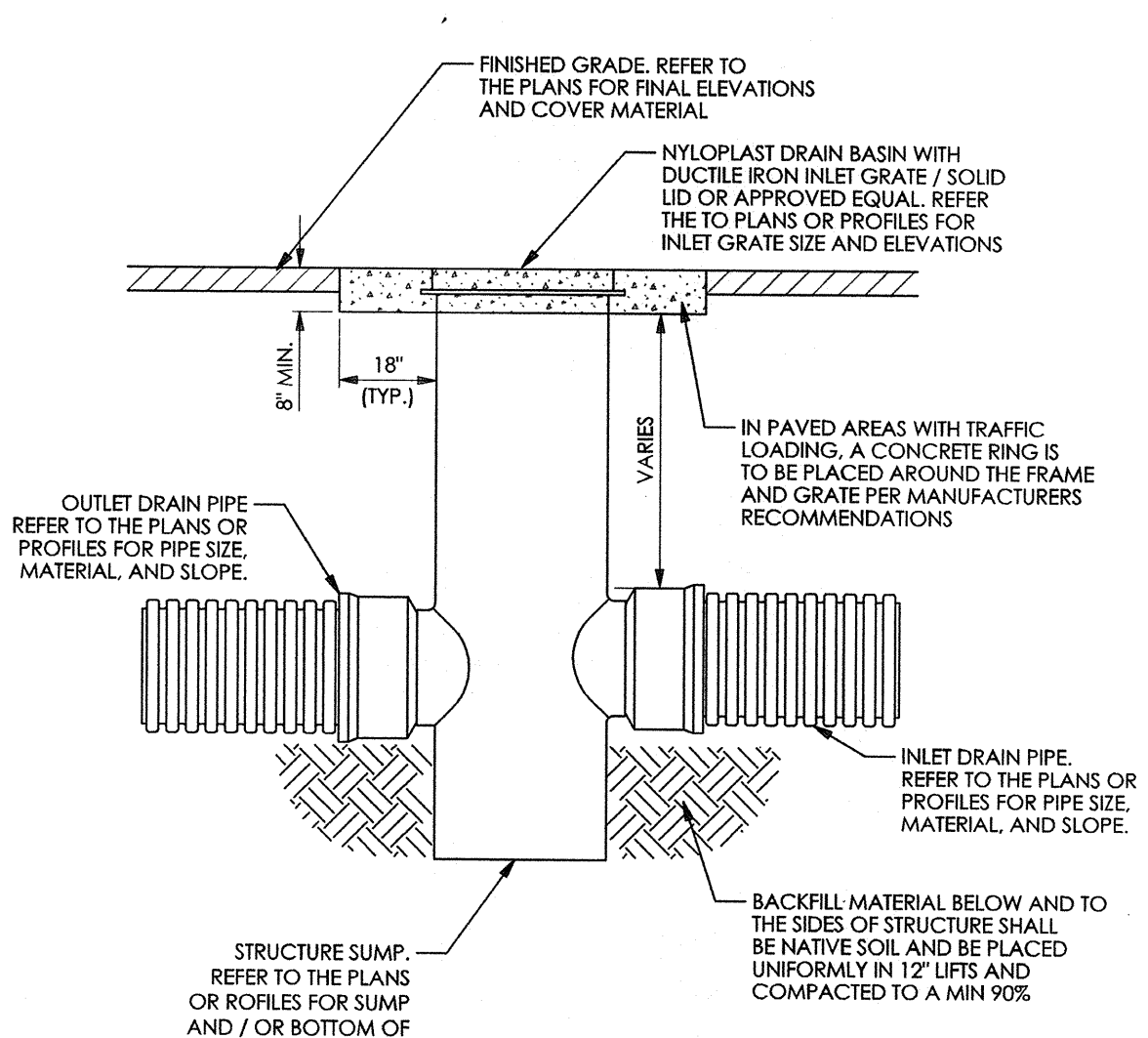
PRECAST MANHOLE HEIGHT	TOP STEEL REQUIREMENTS	BOTTOM STEEL REQUIREMENTS
0'-0" TO 30'-0"	#4 BARS AT 6" C TO C OR 0.33 IN/FT WWF 6" MAX. SPACING	#4 BARS AT 12" C TO C OR 0.16 IN/FT WWF 6" MAX. SPACING
> 30'-0" TO 60'-0"	#5 BARS AT 6" C TO C OR 0.56 IN/FT WWF 6" MAX. SPACING	#4 BARS AT 6" C TO C OR 0.27 IN/FT WWF 6" MAX. SPACING

- NOTES:  
1. CAST-IN-PLACE MANHOLES, MEETING THE REQUIREMENTS OF PUB. 408, SEC. 714, AND PENN.DOT RC-39M, MAY BE SUBSTITUTED FOR PRECAST MANHOLES.  
2. PROVIDE WELDED WIRE FABRIC MEETING THE REQUIREMENTS OF PUB. 408, SEC. 709.3.  
3. PROVIDE 12" MINIMUM HORIZONTAL CLEARANCE BETWEEN OPENINGS LOCATED AT THE SAME DEPTH. LOCATE PIPES NOT AT THE SAME DEPTH VERTICALLY AT LEAST ONE HALF THE MAXIMUM OPENING DIAMETER APART.  
4. ALL PRECAST REINFORCED CONCRETE CIRCULAR MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM-C478M.

**STANDARD PRECAST MANHOLE**  
FOR PIPES 30" INSIDE DIAMETER AND LESS.  
N.T.S. (SEE PENN.DOT RC-39M)

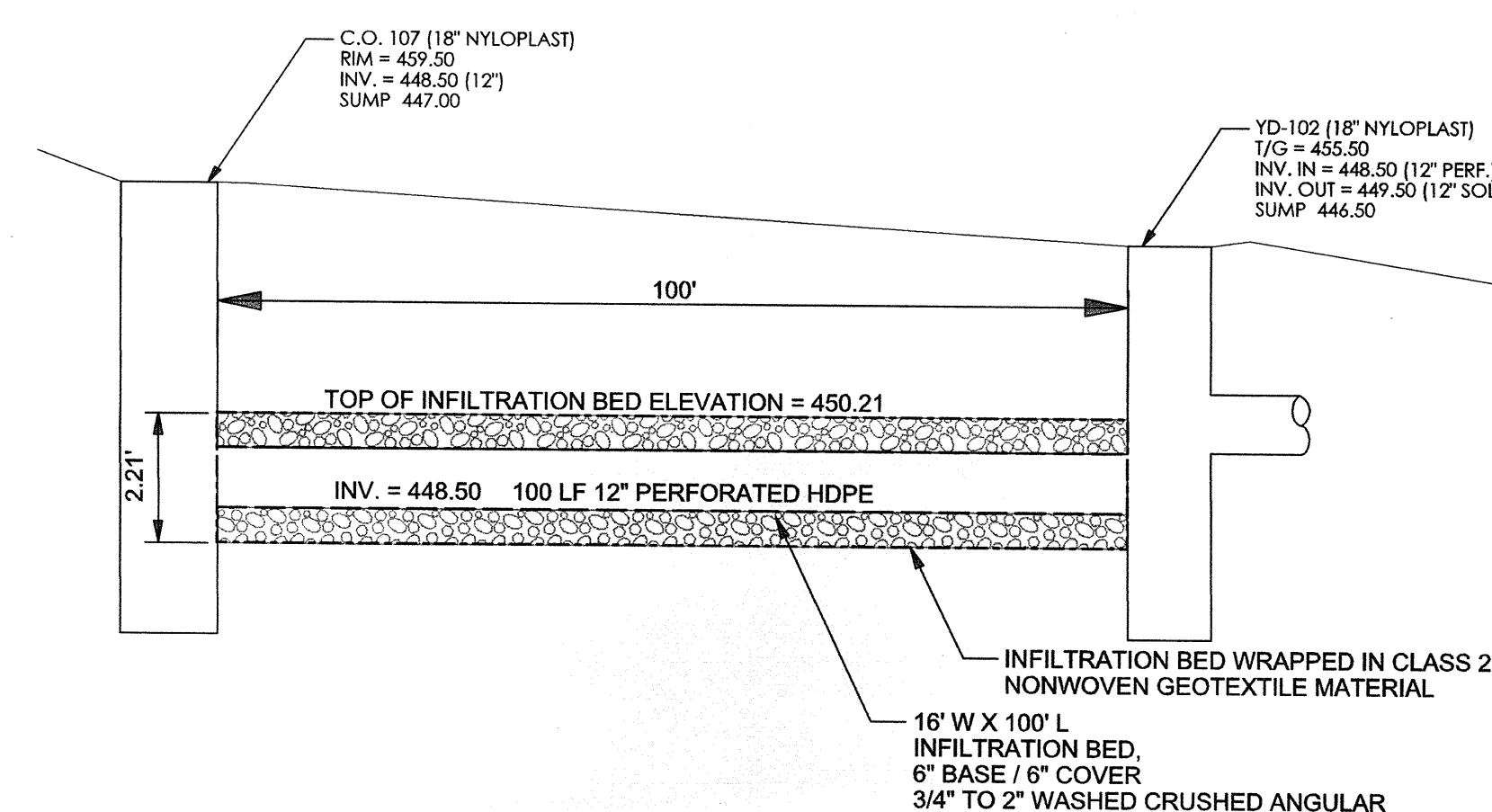


**INFILTRATION BED (SYSTEM 104) DETAIL**  
N.T.S.

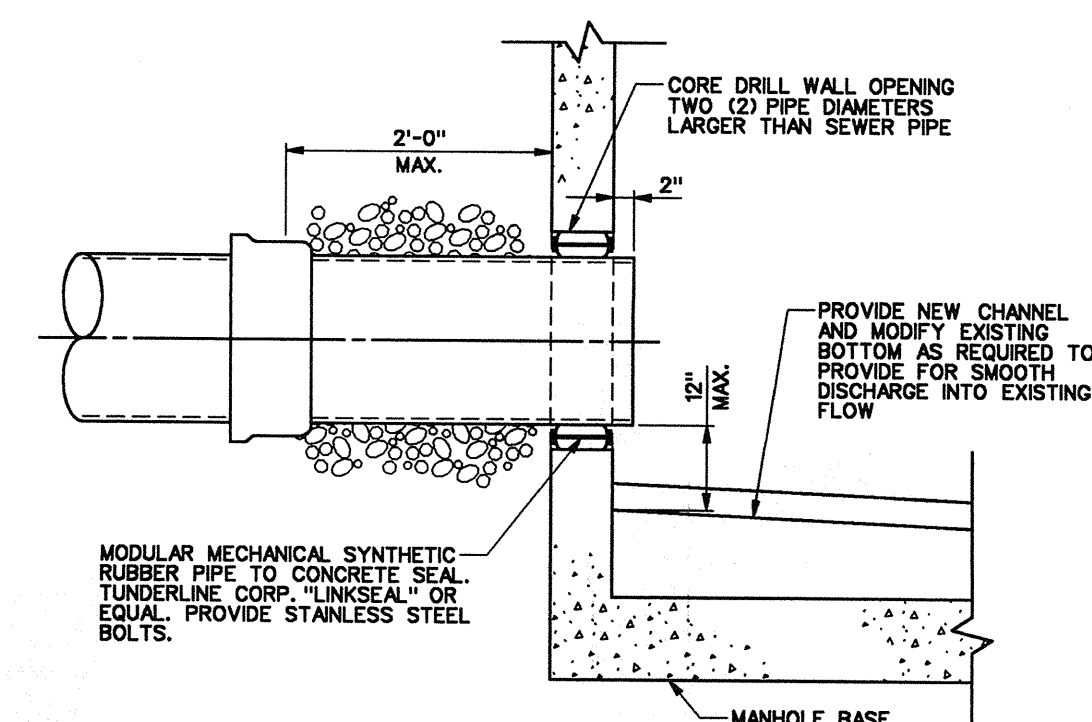


**NYLOPLAST DRAIN BASIN / CLEANOUT**  
N.T.S.

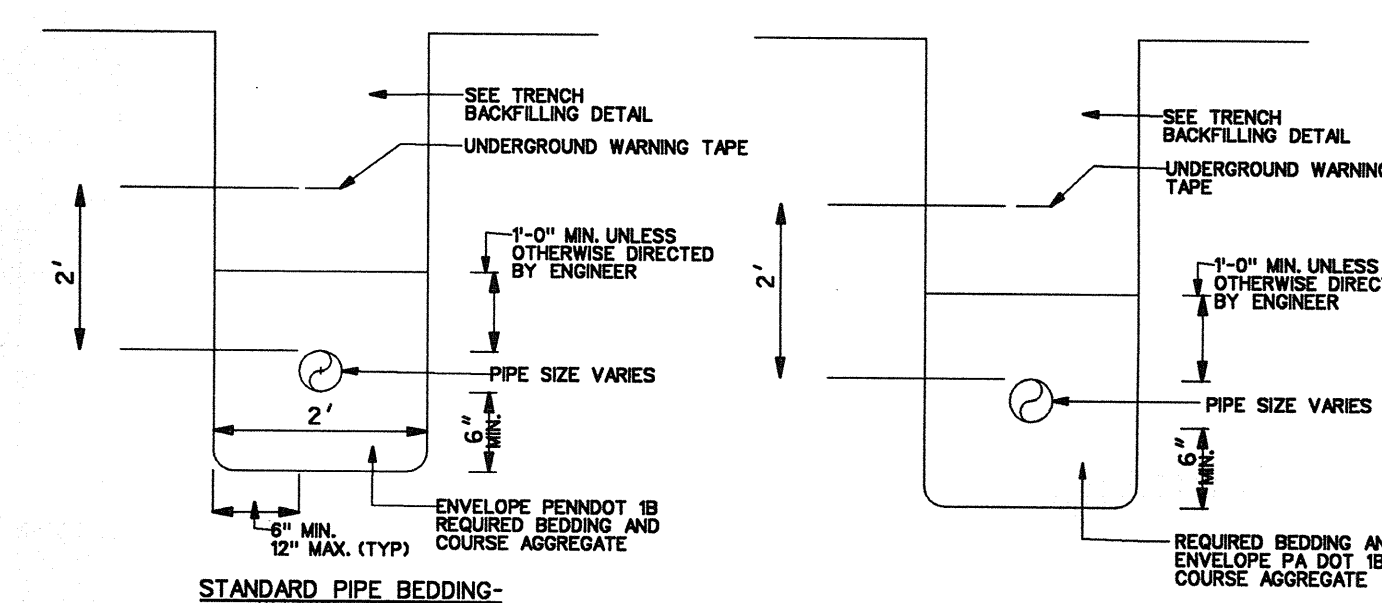
- NOTES:  
1. SURFACE DRAINAGE INLETS SHALL INCLUDE THE DRAIN BASIN SIZE AND TYPE AS INDICATED ON THE DRAWINGS. THE DUCTILE IRON GRATES FOR EACH OF THESE FITTINGS ARE TO BE CONSIDERED AN INTEGRAL PART OF THE SURFACE DRAINAGE INLET AND SHALL BE FURNISHED BY THE SAME MANUFACTURER. THE SURFACE DRAINAGE INLETS SHALL BE AS MANUFACTURED BY NYLOPLAST, A DIVISION OF ADVANCED DRAINAGE SYSTEMS, INC., OR PRIOR APPROVED EQUAL. REFER TO MANUFACTURERS MATERIAL AND PRODUCT INSTALLATION SPECIFICATIONS FOR ALL BASIN, GRATE, AND BACKFILL MATERIAL SPECIFICATIONS.  
2. ALL PIPING JOINTS ONSITE ARE TO BE WATERTIGHT.



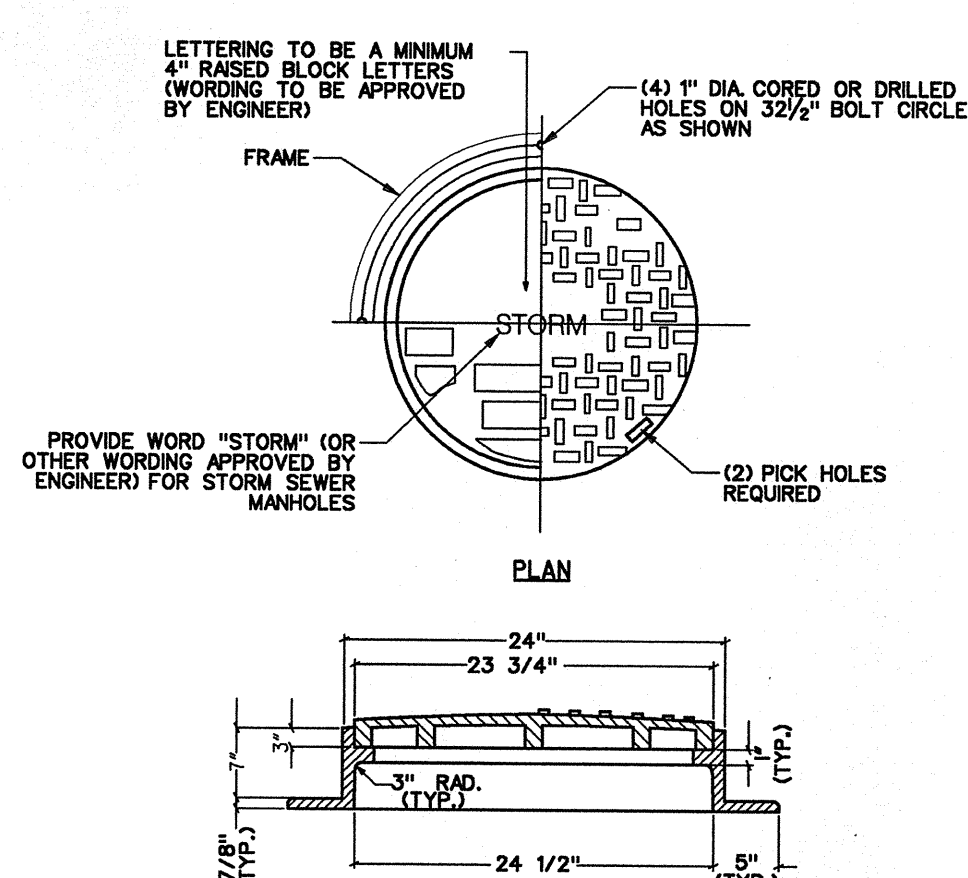
**PROFILE VIEW INFILTRATION BED (SYSTEM 104)**  
N.T.S.



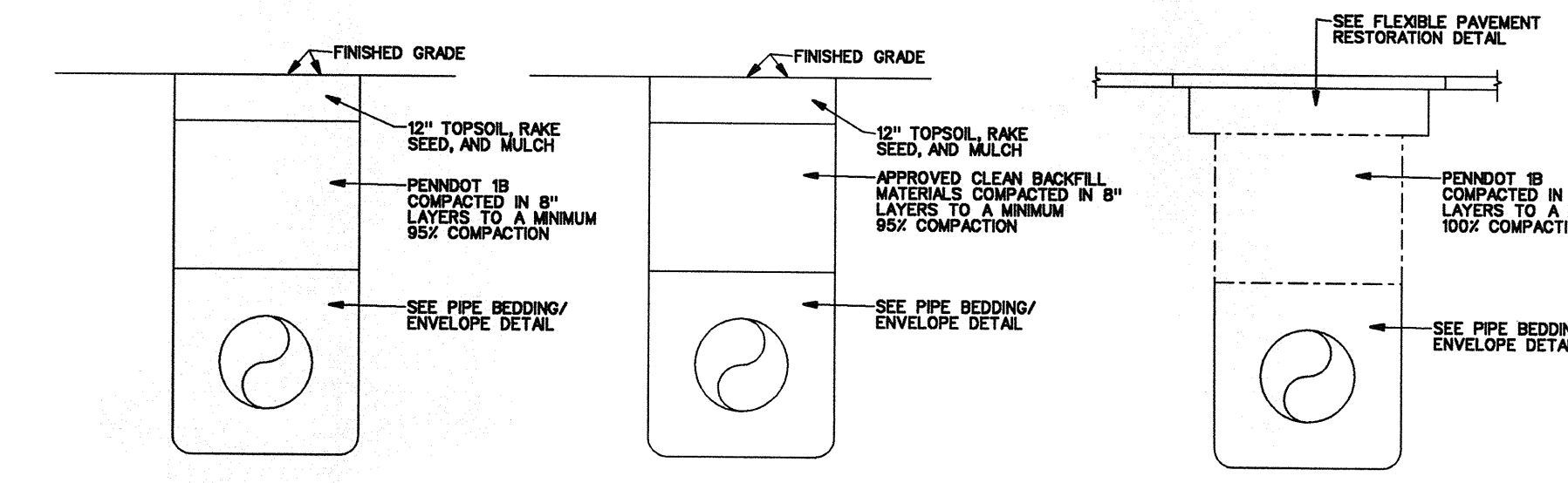
**PIPE CONNECTION TO AN EXISTING MANHOLE**  
N.T.S.



**PIPE BEDDING/ENVELOPE DETAIL**  
N.T.S.



**HEAVY DUTY CAST IRON MANHOLE FRAME AND SELF-SEALING COVER**  
N.T.S.



**TRENCH BACKFILL**  
N.T.S.

- NOTES:  
1. TRENCH COMPACTING TO BE TESTED, AT THE CONTRACTOR'S EXPENSE, IN ACCORDANCE WITH PENN.DOT PUB 408.  
2. CLEAN FILL MUST BE APPROVED BY THE CITY'S ENGINEER PRIOR TO PLACEMENT IN THE TRENCH.  
3. AREAS AROUND MANHOLES AND OTHER APPURTENANCES SHALL BE HAND COMPACTED AS DIRECTED BY THE CITY'S ENGINEER.

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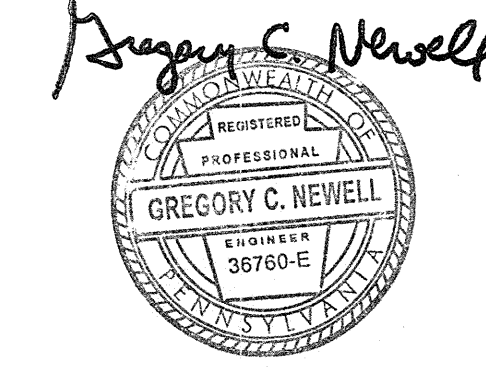
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RECORD PLAN  
SUBMISSION  
Revision #6 October 6, 2015  
Date March 13, 2015  
Title Construction Detail Sheet  
Scale N.T.S.  
Drawn By MMB







Villanova University  
Church Walk and Bridge

Lancaster and Ithan Avenues  
Villanova, PA 19085

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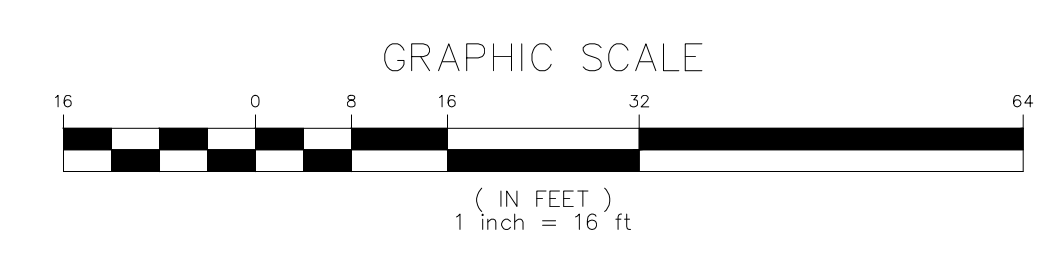
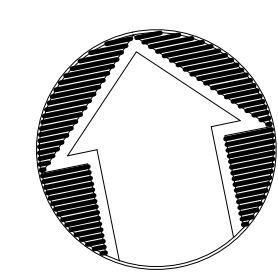
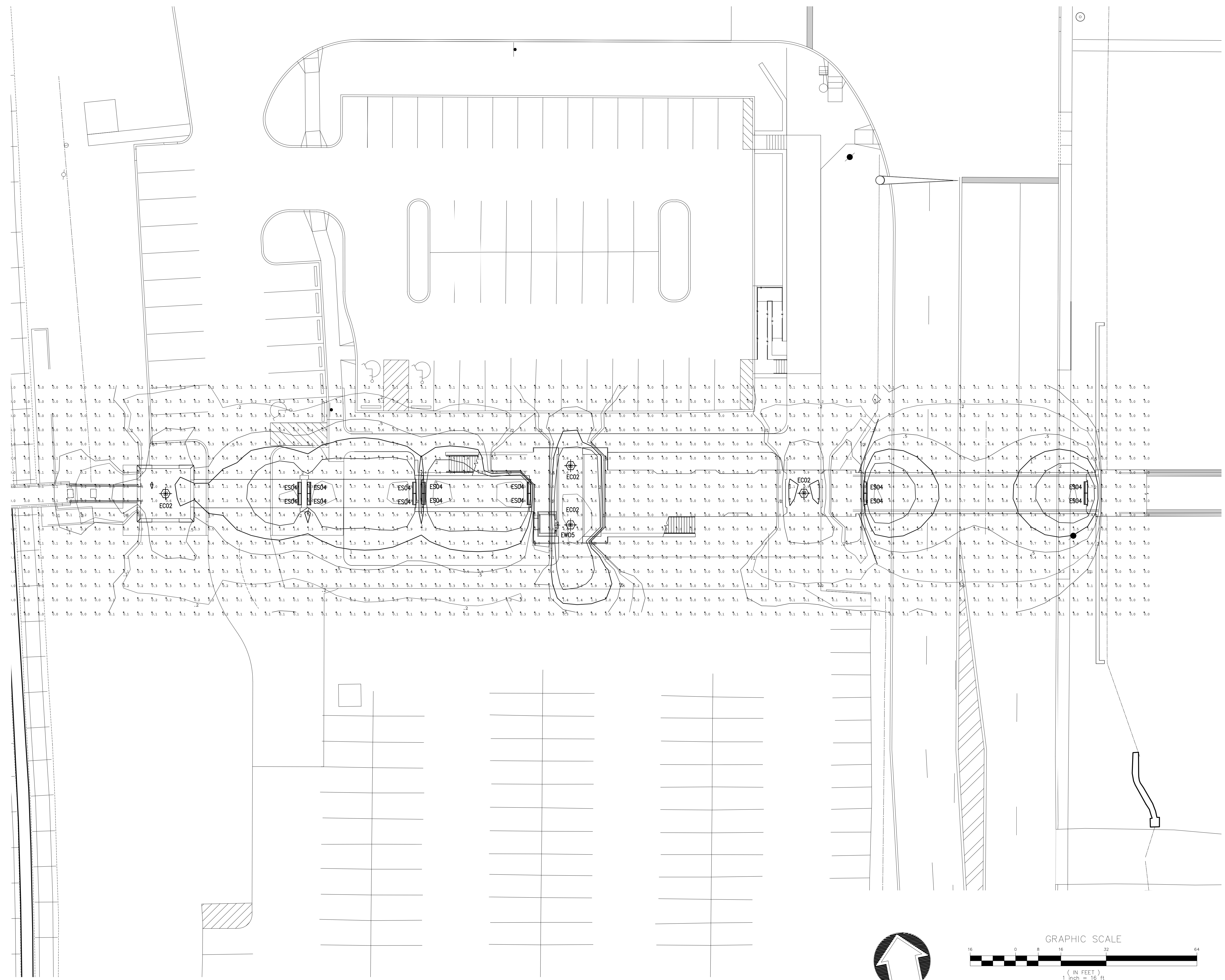
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FINAL LAND DEVELOPMENT  
PLANS

Revision August 10, 2015  
Date March 13, 2015  
Title Site Lighting Plan

Scale 1" = 16'  
Drawn By JO/JL

**C7.1**

Sheet No. 13 of 20

Contractor to verify all dimensions in field and inform  
Architect of any discrepancies before starting work.



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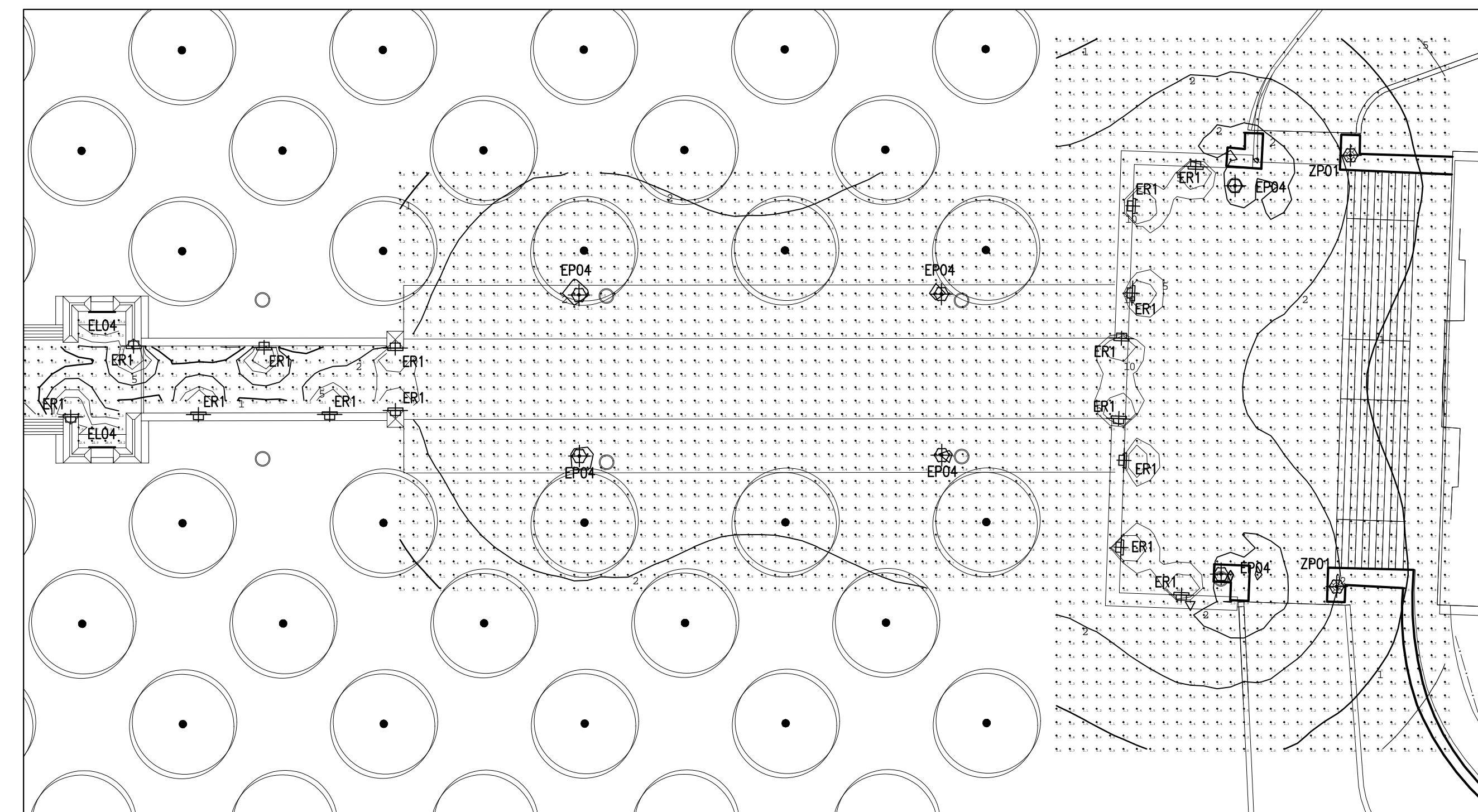
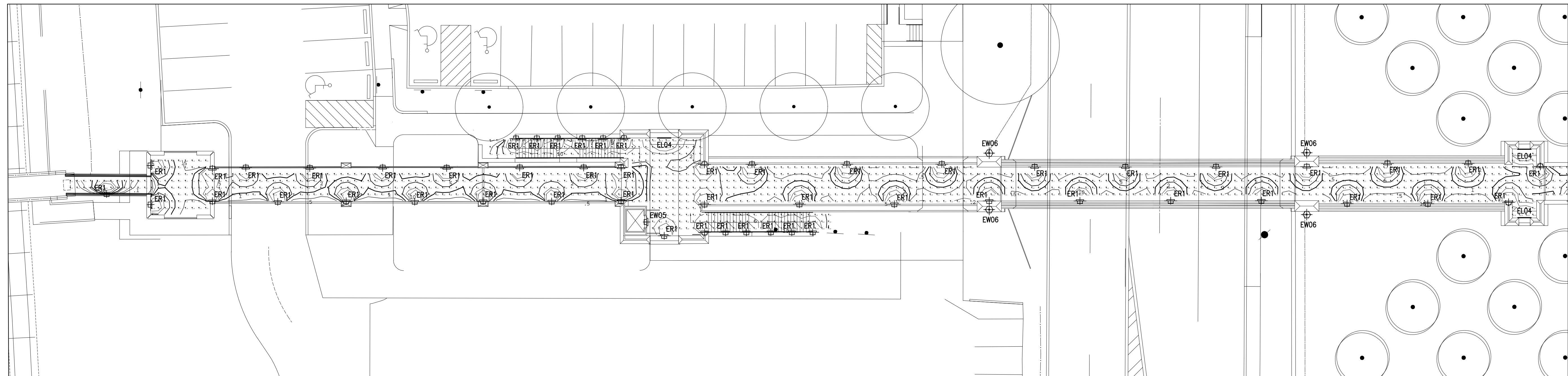
FINAL LAND DEVELOPMENT  
PLANS

Revision August 10, 2015  
Date March 13, 2015  
Title Site Lighting Plan  
Bridge level  
Scale 1" = 16'  
Drawn By JO/JL

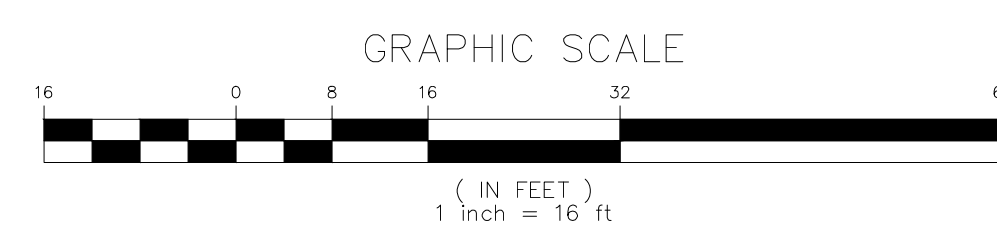
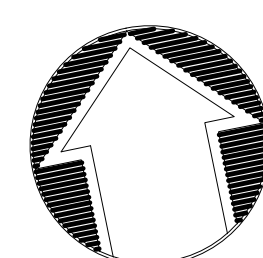
**C7.2**

Sheet No. 14 of 20

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Architect of any discrepancies before starting work.



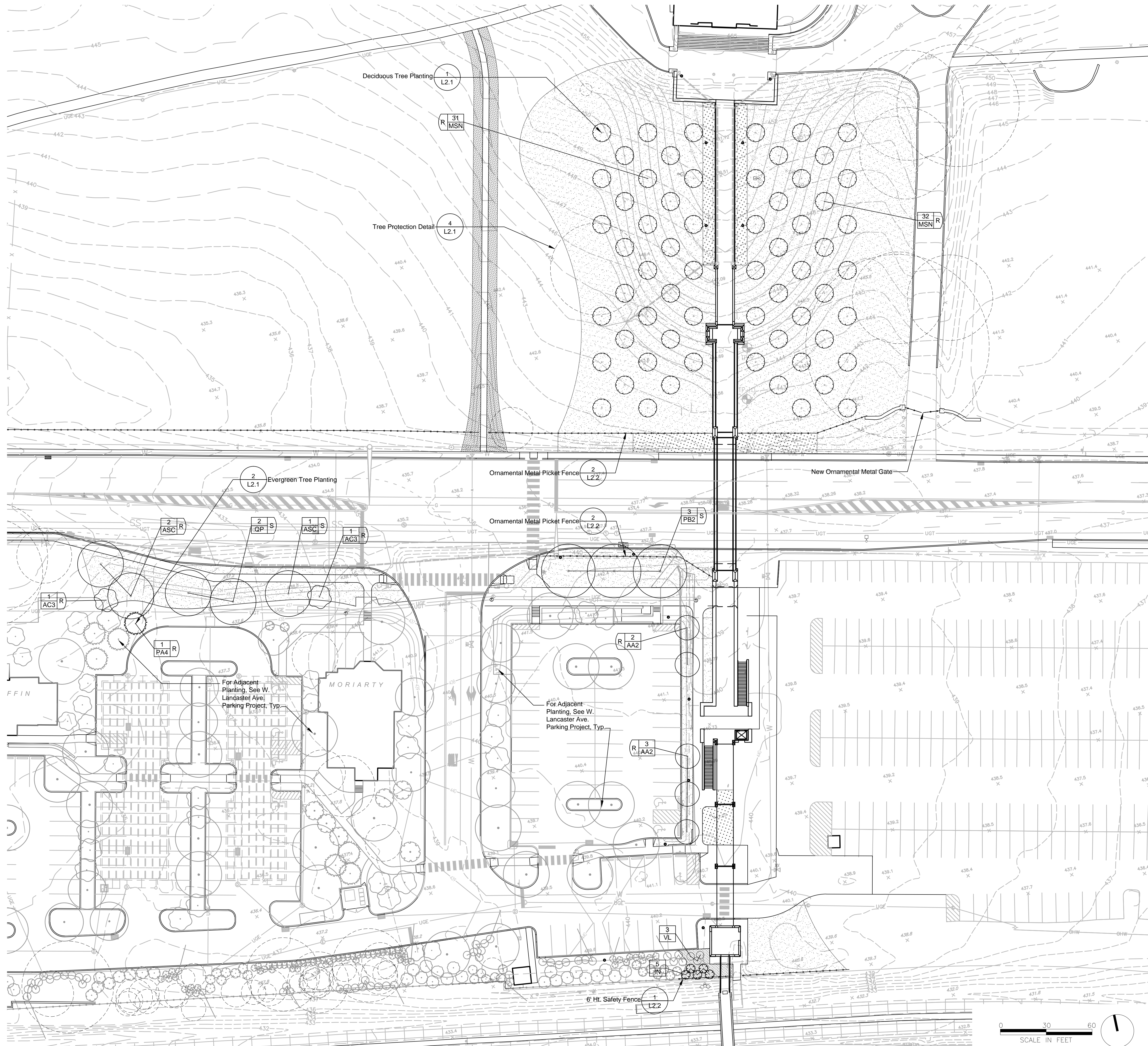
Please note: existing church facade flood lights to be removed during construction and re-installed after construction is completed.











- Legend**
- 2 NS S Street Trees
  - 2 NS R Replacement Trees
  - 2 NS A Replacement Trees for W. Lancaster Ave. Parking Project; See W. Lancaster Ave. Parking Tree Requirement Table
  - Lawn
  - Planting Beds
  - Refurbish Existing Turf Grass As Required
  - "No Mow" Seed Mix
  - Pole Light; See Lighting Plans and Details
  - Fence

- Notes:**
1. See Site Plans for all proposed paving information.
  2. See "EX" series of drawings in the Lancaster Avenue Housing set for an elevation view of proposed buffer planting at the southern project boundary.
  3. See Sheet No. C2.0 for information regarding Land Preservation requirements and calculations for the Aldwyn Triangle.

Villanova University  
Church Walk and Bridge  
Lancaster and Ithan Avenues  
Villanova PA 19085

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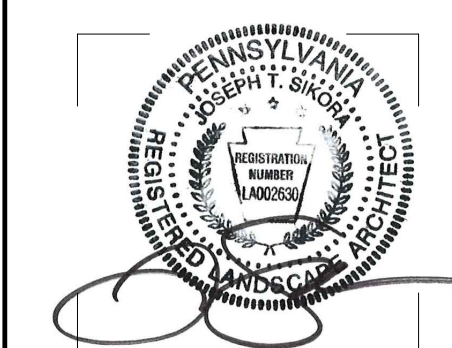
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Joseph Sikora  
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**FINAL LAND DEVELOPMENT  
SUBMISSION**

Revision August 10, 2015  
Date March 13, 2015  
Title Planting Plan

Scale 1" = 30'-0"  
Drawn By RM

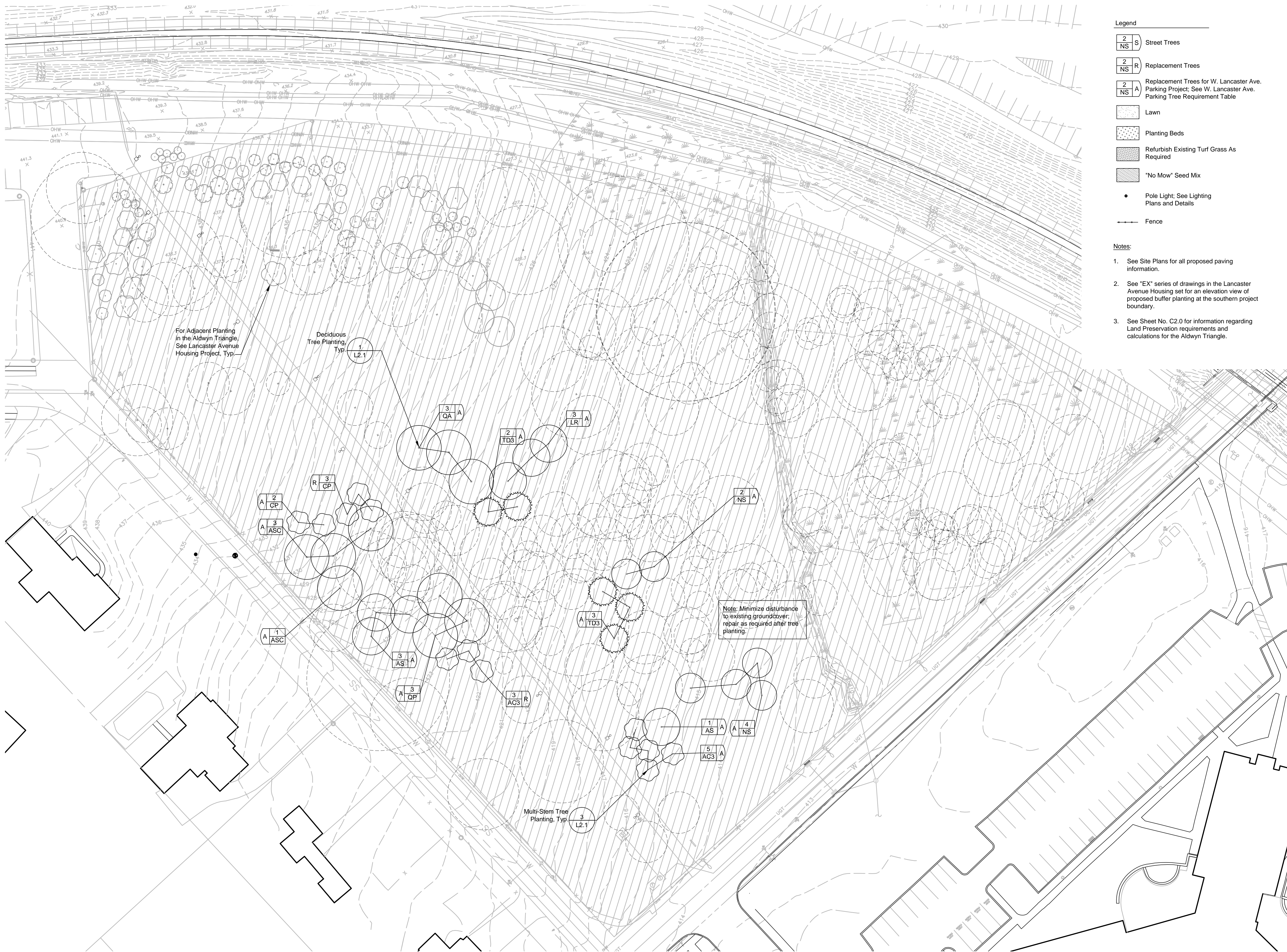
# L1.0

Sheet No. 16 of 20

Contractor to verify all dimensions in field and inform Architect of any discrepancies before starting work.







- Legend**
- 2 NS S Street Trees
  - 2 NS R Replacement Trees
  - 2 NS A Replacement Trees for W. Lancaster Ave. Parking Project; See W. Lancaster Ave. Parking Tree Requirement Table
  - Lawn
  - Planting Beds
  - Refurbish Existing Turf Grass As Required
  - "No Mow" Seed Mix
  - Pole Light; See Lighting Plans and Details
  - Fence

- Notes:**
- See Site Plans for all proposed paving information.
  - See "EX" series of drawings in the Lancaster Avenue Housing set for an elevation view of proposed buffer planting at the southern project boundary.
  - See Sheet No. C2.0 for information regarding Land Preservation requirements and calculations for the Aldwyn Triangle.

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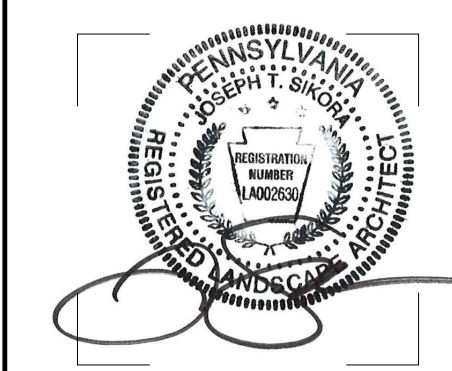
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**FINAL LAND DEVELOPMENT  
SUBMISSION**

Revision	August 10, 2015
Date	March 13, 2015
Title	Planting Plan at Aldwyn Triangle
Scale	1" = 30'-0"
Drawn By	RM

# L1.1

Contractor to verify all dimensions in field and inform Architect of any discrepancies before starting work.





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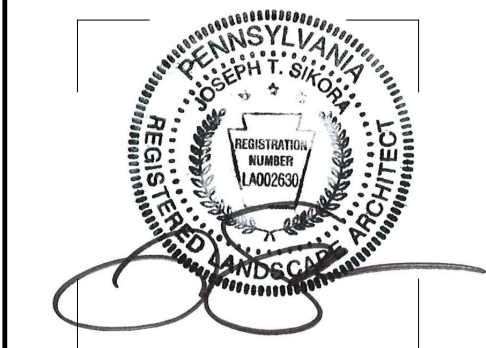
ELEVATOR CONSULTANT  
Zipf Associates Inc.  
25 Bala Avenue, Suite 201  
Bala Cynwyd, PA 19004  
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TREE REQUIREMENT TABLE		
	REQUIRED	PROPOSED
<b>STREET TREES</b>		
LANCASTER AVENUE (South Side Only) = 164' FT. SECTION 255-38.B. - INTERVALS OF NOT MORE THAN 30 FEET	164/30' = 5 TREES	6 TREES
<b>BUFFER SCREENS</b>		
SOUTHERN PROPERTY LINE ADJACENT TO R-100 TRAIN RIGHT OF WAY SECTION 255-42 CLASS 'B' BUFFER SCREEN OPTION SELECTED: (1) EVERGREEN PER 15 FEET (INFORMALLY ARRANGED) PLUS: (1) EVERGREEN SHRUB PER 8 FEET (INFORMALLY ARRANGED)	26/15' = 2 EVERGREEN TREES 26/8' = 3 EVERGREEN SHRUBS	5 EVERGREEN TREES 3 EVERGREEN SHRUBS
<b>REPLACEMENT TREES</b>		
6 TO 18 INCH DBH REMOVED = (1) REPLACEMENT TREE 19 TO 29 INCH DBH REMOVED = (3) REPLACEMENT TREES** 30 INCH DBH OR GREATER REMOVED = (6) REPLACEMENT TREES***	(73) REMOVALS @ 6 TO 18 INCH = 73 REPLACEMENTS (1) REMOVALS @ 30 INCH+ = (1) x 6 = 6 REPLACEMENTS TOTAL REPLACEMENT TREES REQUIRED = 79 TREES	LARGE CANOPY TREES = 7 TREES ORNAMENTAL TREES = 71 TREES EVERGREEN TREES = 1 TREES TOTAL TREES PROPOSED = 79 TREES (INCLUDES 6 ORNAMENTAL TREES AT ALDWYN TRIANGLE - SEE SHEET L1.1 FOR LOCATIONS)
** TWO BEING LARGE CANOPY TREES *** FOUR BEING LARGE CANOPY TREES		

NOTES:

1. QUANTITY, AND ARRANGEMENT OF PLANT MATERIAL WITHIN BUFFER SCREEN WILL PRODUCE A VISUAL SCREEN NOT TO BE SEEN THROUGH AND PROVIDE IMMEDIATE VISUAL SCREENING TO THE ABUTTING PROPERTY OR DISTRICT AS PER SECTION 280-71.A. OF THE TOWNSHIP ZONING ORDINANCE.

PLANT SCHEDULE							
CANOPY TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE	REMARKS
AA2	5	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	B & B	2	1/2" - 3"	MATCHED SPECIMENS
AS	4	ACER RUBRUM 'SOMERSET'	SOMERSET RED MAPLE	B & B	2"	2 1/2"	
ASC	7	ACER SACCHARUM 'COMMEMORATION'	COMMEMORATION SUGAR MAPLE	B & B	2"	2 1/2"	FULL HEAD
LR	3	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA' TM	ROUND-LOBED SWEET GUM	B & B	2	1/2" - 3"	MATCHED SPECIMENS; FULL HEAD
NS	6	NYSSA SYLVATICA	SOUR GUM	B & B	2"	2 1/2"	SPECIMEN QUALITY
PB2	3	PLATANUS X ACERIFOLIA 'BLOODGOOD'	LONDON PLANE TREE	B & B	2	1/2" - 3"	MATCHED; SPECIMEN QUALITY
QA	3	QUERCUS ALBA	WHITE OAK	B & B	2"	2 1/2"	SPECIMEN QUALITY
QP	5	QUERCUS PHELLOS	WILLOW OAK	B & B	2"	2 1/2"	
TD3	5	TAXODIUM DISTICHUM	BALD CYPRESS	B & B	2"	2 1/2"	
EVERGREEN TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE	REMARKS
IN	5	ILEX X 'NELLIE R STEVENS'	NELLIE STEVENS HOLLY	B & B		8'-10' HT.	SPECIMENS; FULL TO GROUND; 6' MAX. O.C. SPACING IN BUFFER
PA4	1	PICEA ORIENTALIS 'AUREA'	SPRUCE	B & B		8'-10' HT.	
ORNAMENTAL TREES	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE	REMARKS
AC3	10	AMELANCHIER CANADENSIS	SHADBLOW SERVICEBERRY MULTI-TRUNK	B & B		8'-10' HT.	FULL SPECIMENS; MIN. 5 STEMS
CP	5	CRATAEGUS PHAENOPYRUM	WASHINGTON HAWTHORN	B & B	2"	2 1/2"	
MSN	63	MALUS X 'SNOWDRIFT'	SNOWDRIFT CRAB APPLE	B & B	2	1/2" - 3"	
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	CONT	SIZE		REMARKS
VL	3	VIBURNUM RHYTIDOPHYLLUM	LEATHERLEAF VIBURNUM	B & B	5'-6'	HT.	DENSE, FULL PLANTS; 5' MAX. O.C. SPACING



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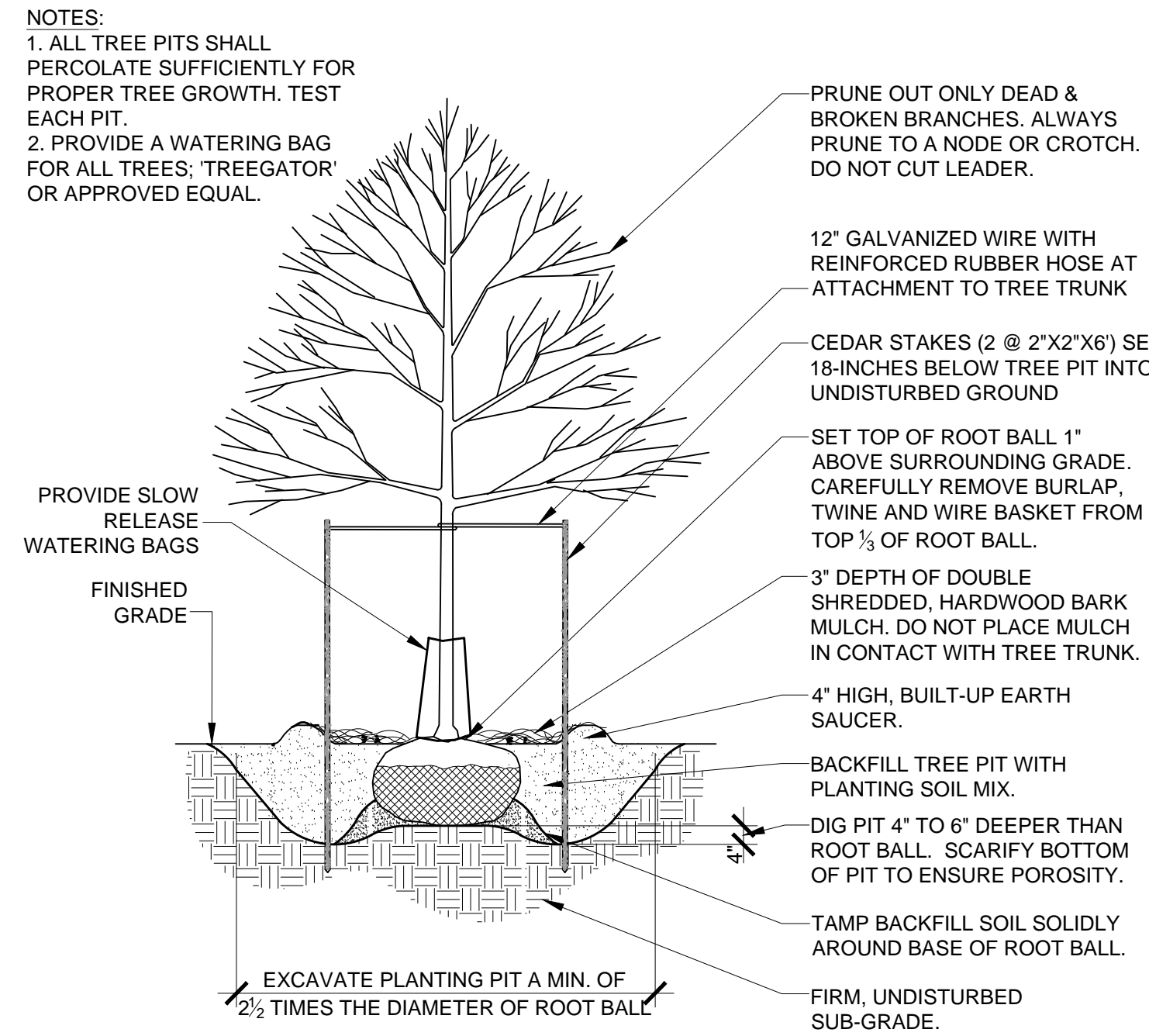
FINAL LAND DEVELOPMENT  
SUBMISSION

Revision August 10, 2015  
Date March 13, 2015  
Title Planting Schedule  
and Tabulations

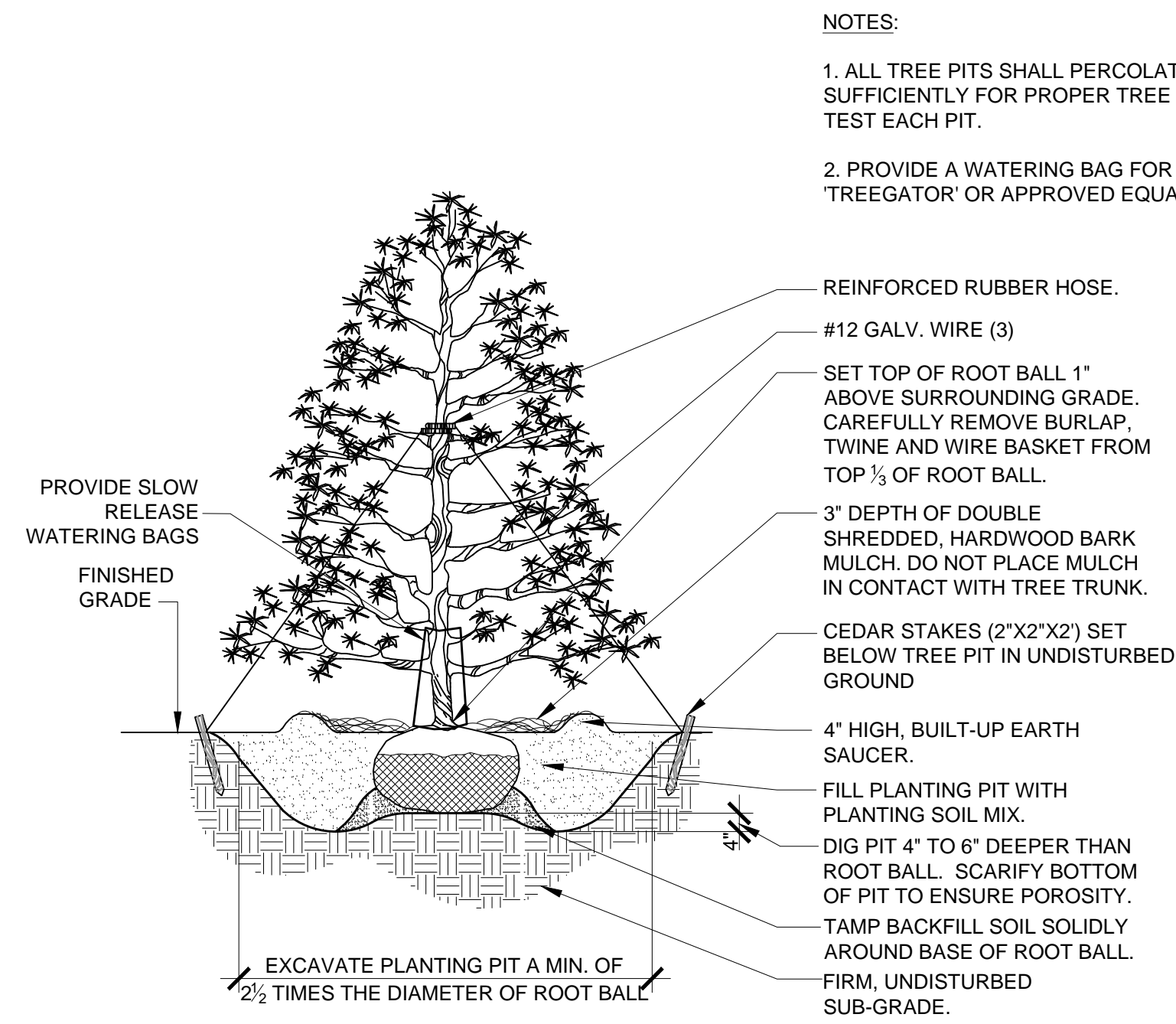
Scale As Indicated  
Drawn By RM

# L2.0

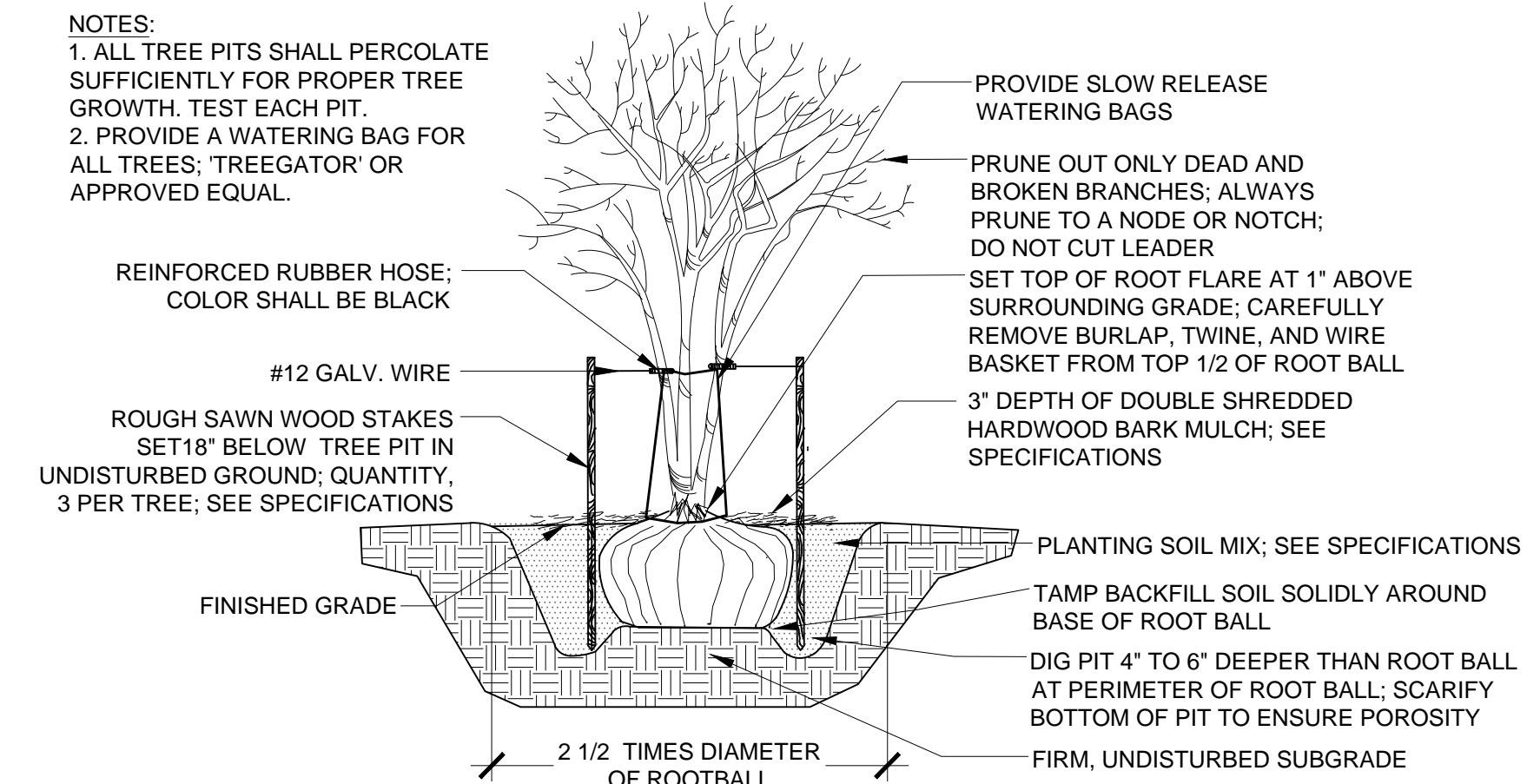




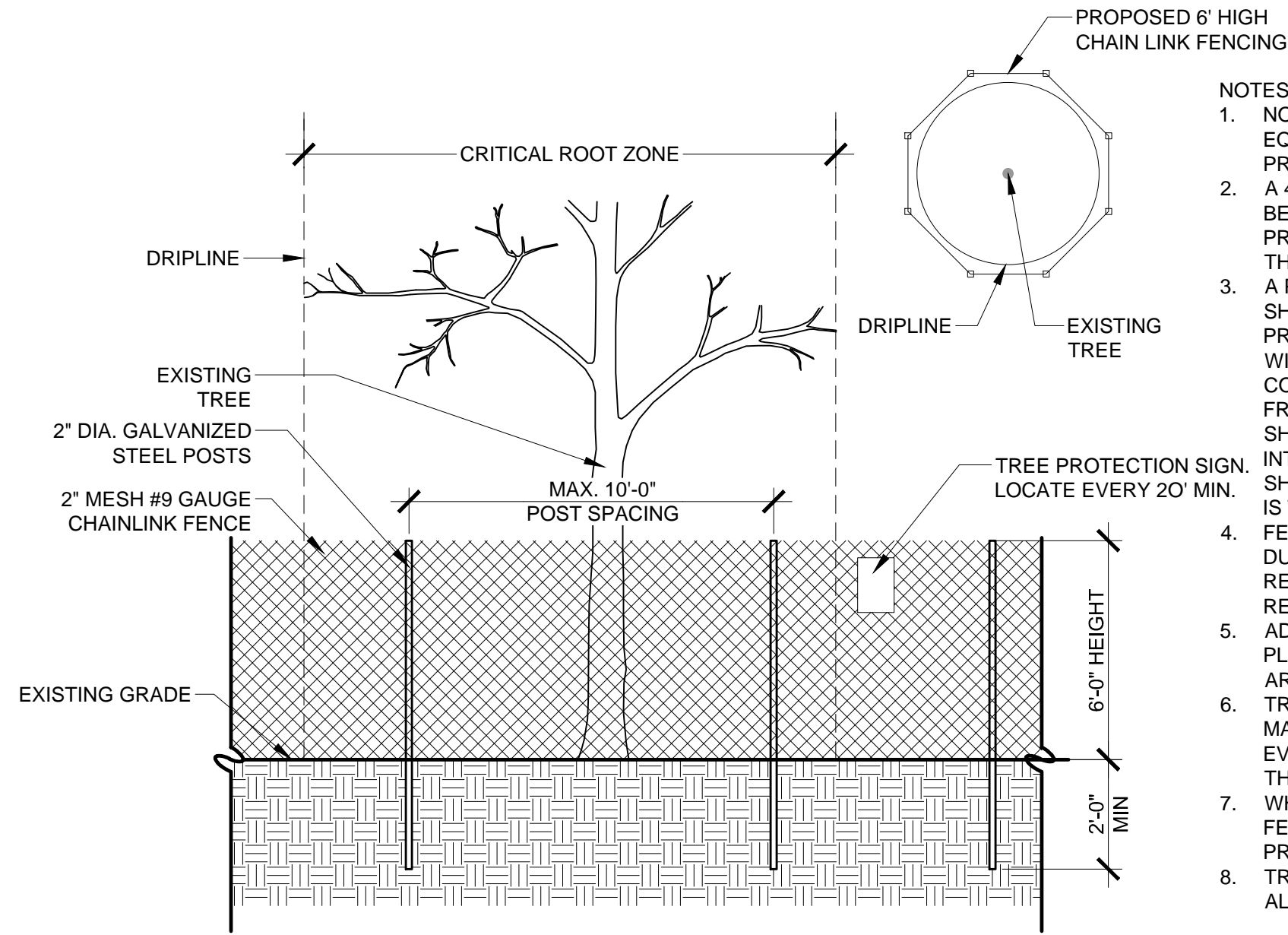
**1**  
**L2.1** Deciduous Tree Planting  
N.T.S.



**2**  
**L2.1** Evergreen Tree Planting  
N.T.S.

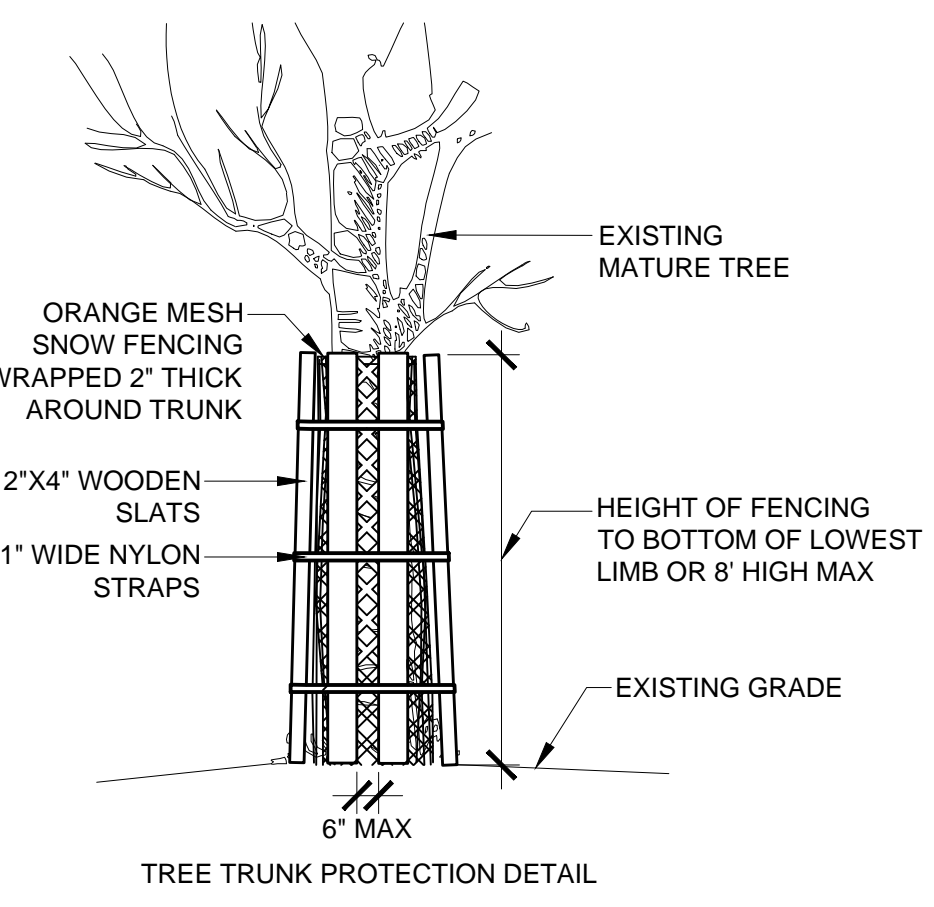


**3**  
**L2.1** Multi-Stem Tree Planting  
Scale: 0 1' 2' 4' Scale: 1/2"=1'-0"

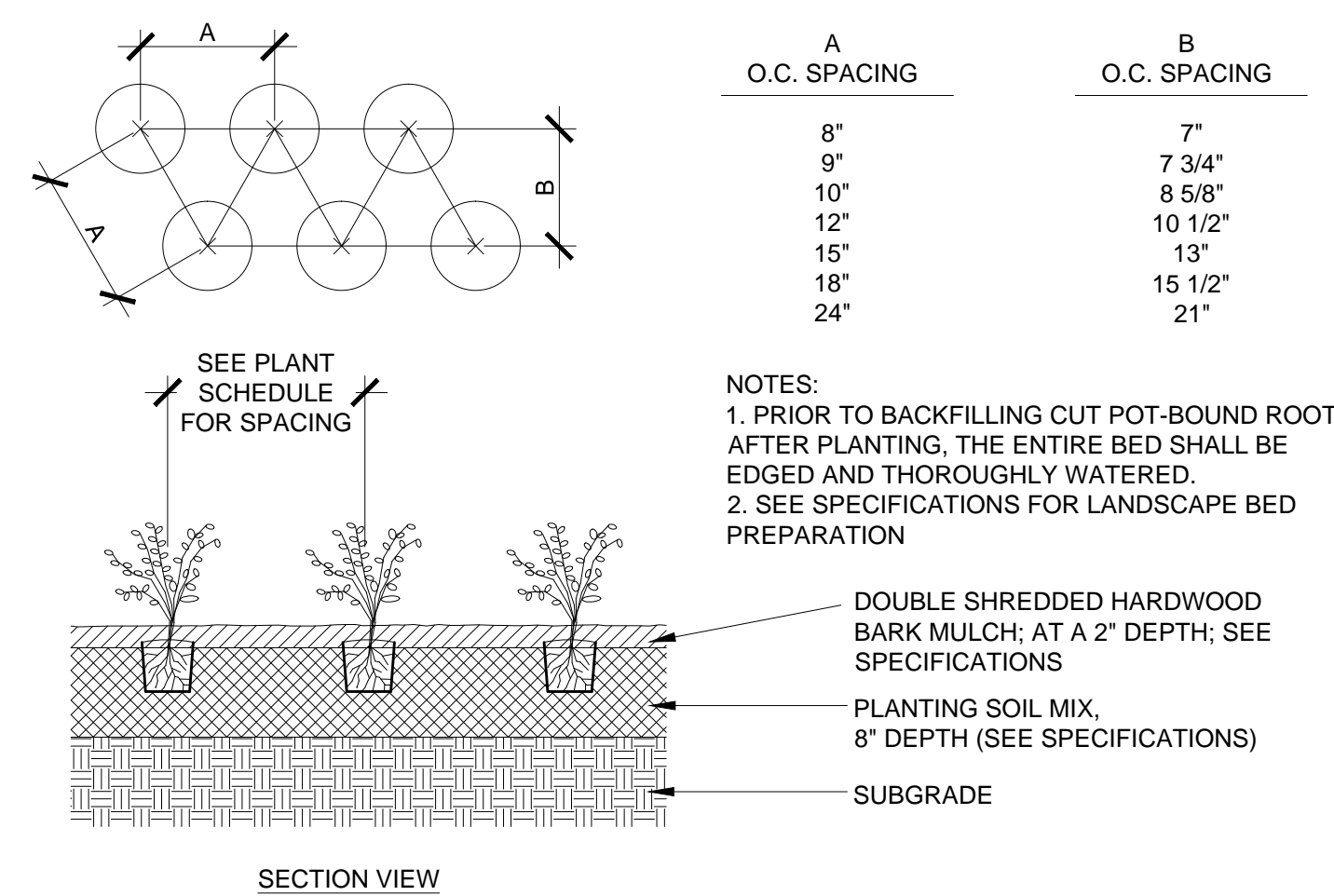


**4**  
**L2.1** Tree Protection Detail  
Scale: 0 2' 4' 8' Scale: 1/4"=1'-0"

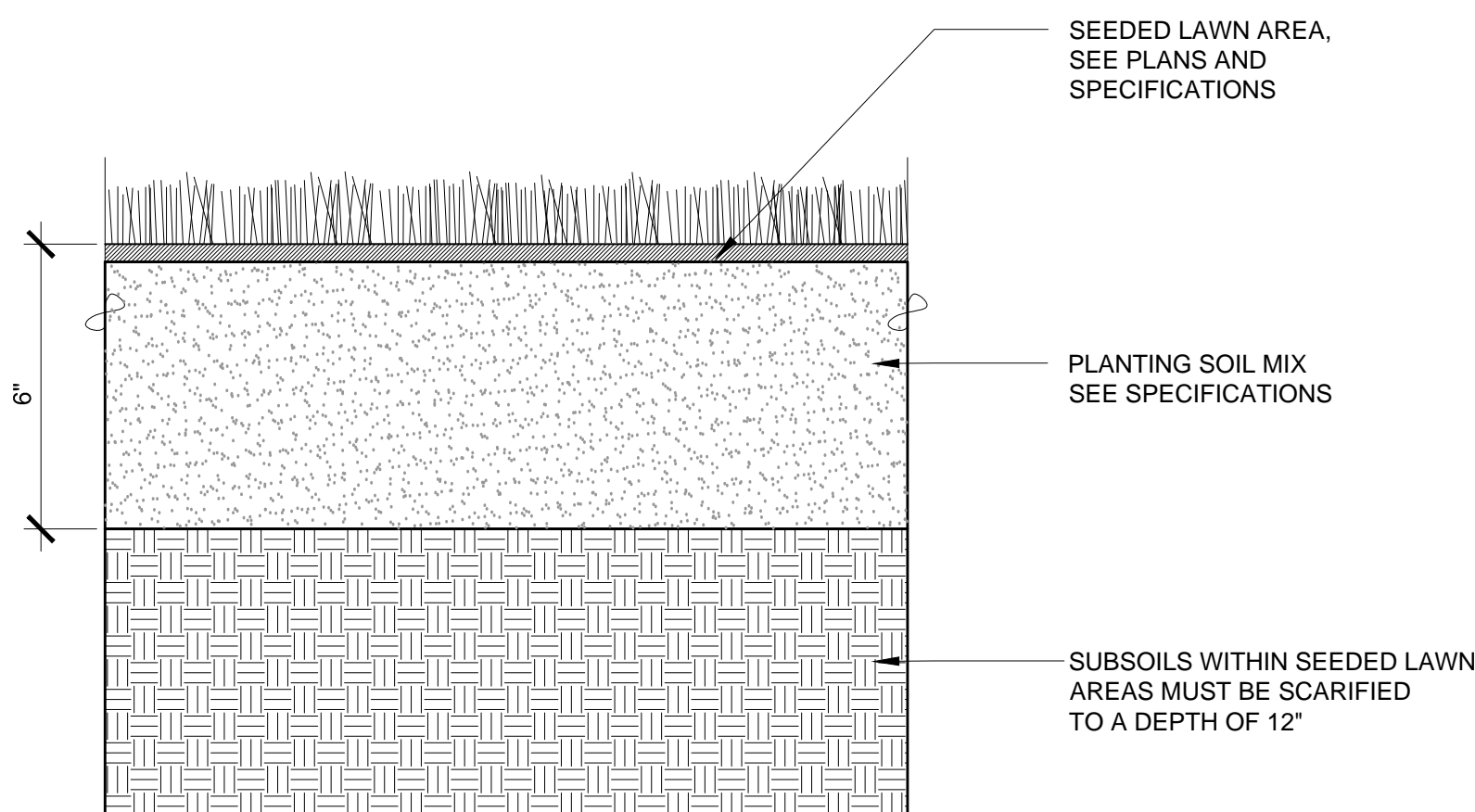
- NOTES:
- NO STORAGE OF MATERIALS OR OPERATION OF EQUIPMENT SHALL BE PERMITTED WITHIN TREE PROTECTION FENCING.
  - A 4" LAYER OF COARSE MULCH OR WOODCHIPS IS TO BE PLACED BENEATH THE DRIPLINE OF THE PROTECTED TREES. MULCH IS TO BE KEPT 12" FROM THE TRUNK.
  - A PROTECTIVE BARRIER OF 6' CHAIN LINK FENCING SHALL BE INSTALLED AROUND THE DRIPLINE OF THE PROTECTED TREE(S). THE FENCING CAN BE MOVED WITHIN THE DRIPLINE IF AUTHORIZED BY THE CONSULTING ARBORIST BUT NOT CLOSER THAN 2' FROM THE TRUNK OF ANY TREE. FENCE POSTS SHALL BE 2.0' IN DIAMETER AND ARE TO BE DRIVEN 2' INTO THE GROUND. THE DISTANCE BETWEEN POSTS SHALL NOT BE MORE THAN 10'. THIS ENCLOSED AREA IS THE TREE PROTECTION ZONE (TPVZ).
  - FENCING SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE WORK AT THE SITE OR UNTIL REMOVAL IS APPROVED BY OWNERS REPRESENTATIVE.
  - ADDITIONAL WARNING SIGNS SHOULD ALSO BE PLACED ON THE FENCING AND IN APPROPRIATE AREAS NEAR THE WORK ZONE.
  - TREE PROTECTION FENCE SHALL BE INSPECTED AND MAINTAINED BY THE CONTRACTOR AT THE END OF EVERY DAY FOR THE DURATION OF THE PROJECT. THE FENCE SHALL BE REPAIRED WHERE NECESSARY.
  - WHERE FENCE MUST BE LOCATED WITHIN FIVE(S) FEET OF EXISTING TREE TRUNK, THE TRUNK PROTECTION DETAIL SHALL ALSO BE USED.
  - TREE PROTECTION MEASURES SHALL COMPLY WITH ALL TOWNSHIP REGULATIONS AND ORDINANCES.



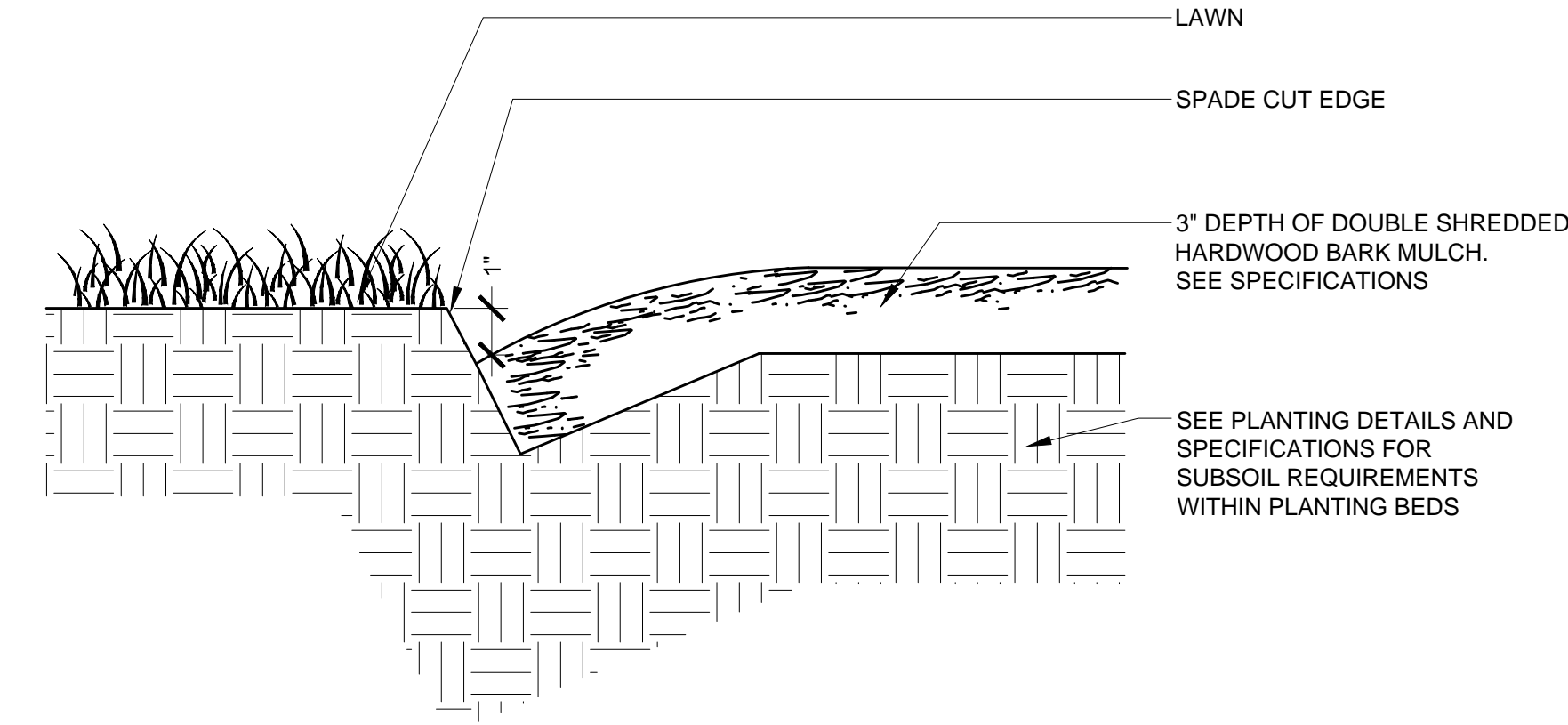
**5**  
**L2.1** Shrub Planting  
Scale: 0 1' 2' 4' Scale: 1/2"=1'-0"



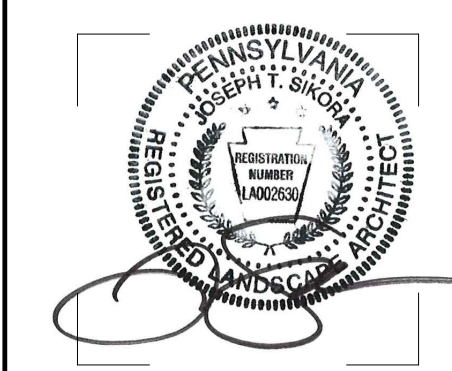
**6**  
**L2.1** Groundcover Planting  
N.T.S.



**7**  
**L2.1** Seed Planting  
N.T.S.



**8**  
**L2.1** Spade Edge  
N.T.S.



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**FINAL LAND DEVELOPMENT  
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Revision	August 10, 2015
Date	March 13, 2015
Title	Landscape Details

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Drawn By DF



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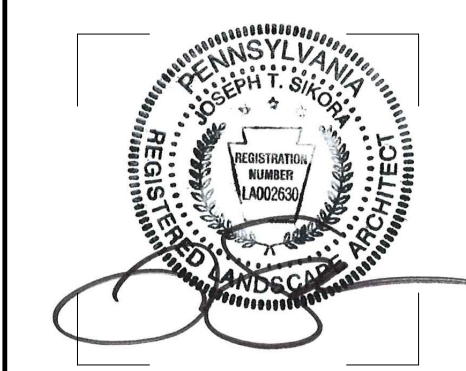
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**FINAL LAND DEVELOPMENT  
 SUBMISSION**

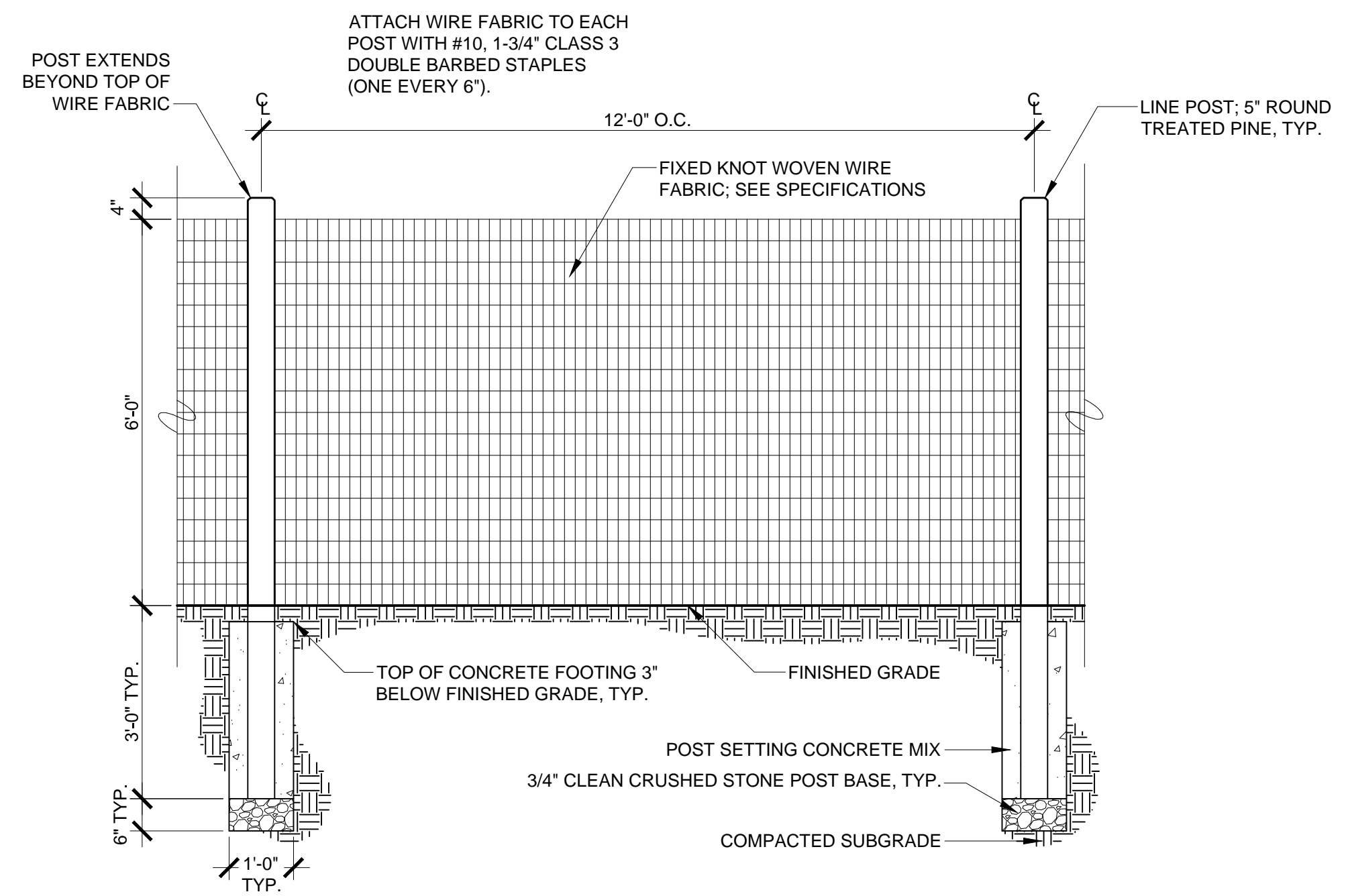
Revision August 10, 2015  
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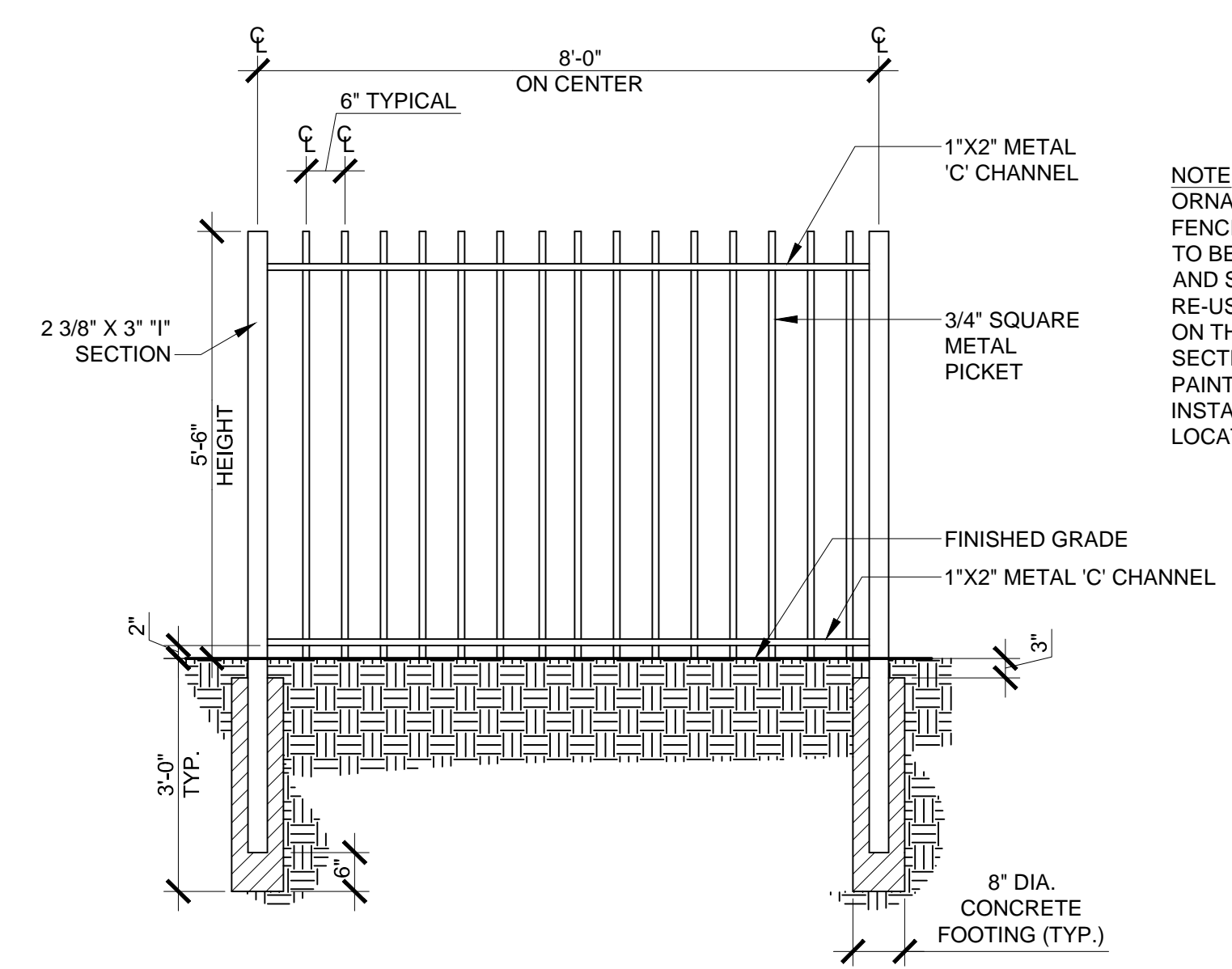
**L2.2**

Sheet No. 20 of 20

Contractor to verify all dimensions in field and inform Architect of any discrepancies before starting work.



**1 6' Ht. Safety Fence**  
 L2.2 Scale: 0 1' 2' 4' Scale: 1/2"=1'-0"



NOTE: EXISTING ON SITE ORNAMENTAL METAL PICKET FENCE SECTIONS AND POSTS TO BE CAREFULLY REMOVED AND STOCKPILED FOR RE-USE WHERE INDICATED ON THE PLANS; FENCE SECTIONS AND POSTS TO BE PAINTED BEFORE INSTALLATION IN NEW LOCATIONS.

**2 Ornamental Metal Picket Fence**  
 L2.2 Scale: 0 1' 2' 4' Scale: 1/2"=1'-0"