WINDSOR AVENUE AND NARBERTH LIBRARY GREEN INFRASTRUCTURE PROJECTS

Narberth Borough

SHEET INDEX

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BOROUGH OF NARBERTH
PUBLIC WORKS DEPARTMENT

GREEN INFRASTRUCTURE PLANS

APPROVED _____
MAYOR AND CITY COUNCIL

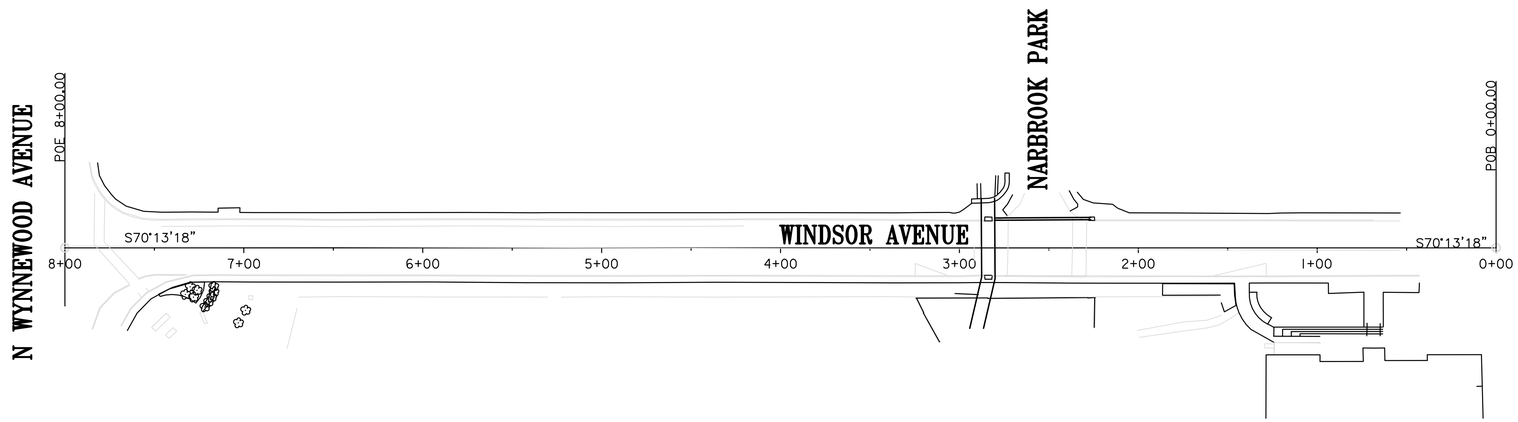
APPROVED _____
BOROUGH MANAGER

WRA
Whitman, Requardt & Associates, LLP
1500 Market Street, 12th Floor, East Tower, Philadelphia, Pennsylvania 19102

LIST OF PUBLIC UTILITIES
PECO
VERIZON
WATER
GAS
PA ONE CALL SYSTEM, INC.
PHONE: 1-800-242-1776
SERIAL NO. 20160431412

GENERAL NOTES:

1. NO ACTUAL BOUNDARY WAS PERFORMED BY WHITMAN, REQUARDT & ASSOCIATES, LLP. FOR THESE PARCELS. BOUNDARIES SHOWN ARE FROM SURVEY PROVIDED BY NAVARRO & WRIGHT CONSULTING ENGINEERS, INC. DATED FEBRUARY 2016, ENTITLED "EXISTING CONDTIONS PLAN WINDSOR AVE. NARBERTH BOROUGH MONTGOMERY COUNTY".
2. THREE WORKING DAYS PRIOR TO EXCAVATION, THE CONTRACTOR MUST CONTACT THE PA ONE CALL SYSTEM, INC., PHONE 1-800-242-1776. SERIAL NO.: 20160431412
3. VERTICAL DATUM IS BASED ON NAVD 88 (GEOID 12B).
4. HORIZONTAL DATUM IS NAD 83 (2011) REFERENCED TO PA. STATE PLANE (SOUTH ZONE) BY O.P.U.S. SOLUTION.
5. IN COMPLIANCE WITH PENNSYLVANIA ACT 287 OF 1974 AS AMENDED BY ACT 187 OF 1996, UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE A COMPILATION OF ACTUAL FIELD LOCATIONS AND DATA FURNISHED FROM INFORMATION SUPPLIED BY OTHERS. WRA ASSUMES NO RESPONSIBILITY FOR THE LOCATION OF UNDERGROUND UTILITIES DEPICTED ON THESE DRAWINGS. ANY REQUEST FOR ADDITIONAL UNDERGROUND UTILITY INFORMATION SHOULD BE DIRECTED TO THE RESPECTIVE UTILITY COMPANY.



PROJECT CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	254282.6480	2664251.5510	256.35	IP CAP
2	254453.1620	2663947.5360	260.60	IP CAP
3	254521.6027	2663805.0499	266.81	MAG
4	254661.1245	2664194.8333	257.03	MAG
5	254668.2345	2664319.5575	257.60	MAG

COORDINATE LIST				
STATION	POINT NO.	NORTHING	EASTING	BEARING
0+00.00	POB	254743.6044	2664477.6353	S70°13'18"
8+00.00	POE	254472.8989	2663724.8282	

BM-ELEV=258.99'
22.24'RT STA. 1+28.11
60 D NAIL IN PECO NB

PENNSYLVANIA
MICHAEL J. CAMPO
REGISTRATION NUMBER
LA002869
REGISTERED LANDSCAPE ARCHITECT

WRA
Whitman, Requardt & Associates, LLP
1013 Centre Road, Suite 302, Wilmington, Delaware 19805

BOROUGH OF NARBERTH
DEPARTMENT OF PUBLIC WORKS
BOROUGH MANAGER DATE

CONTRACT NO. N/A

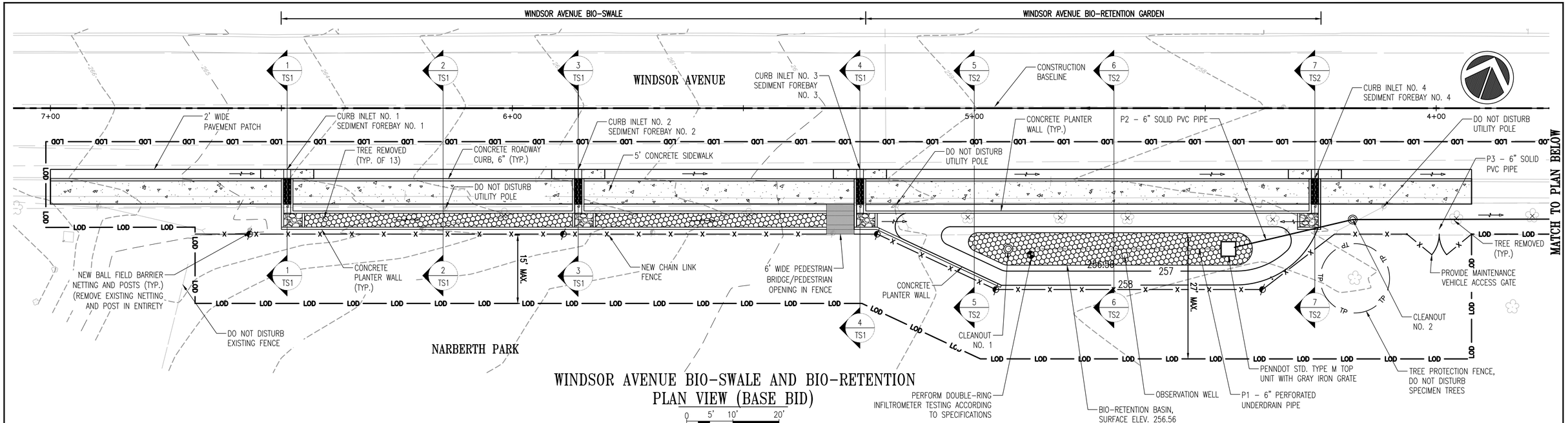
NARBERTH GREEN STORMWATER INFRASTRUCTURE

INDEX SHEET

REV	DATE	DESCRIPTION

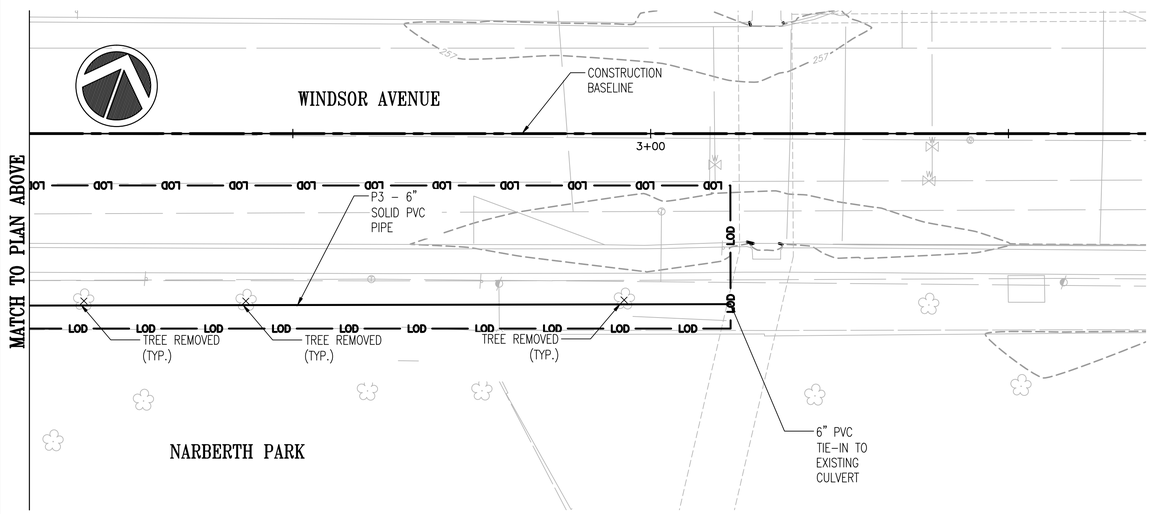
DRAWING TC-01

SHEET 2 OF 12



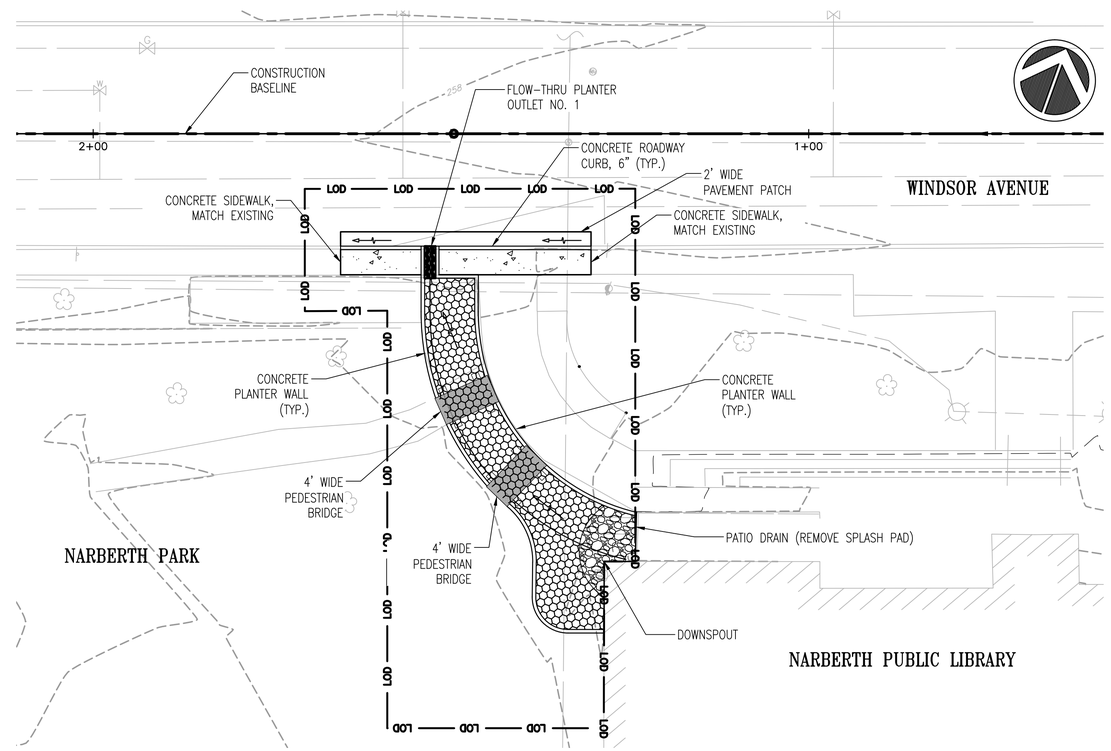
WINDSOR AVENUE BIO-SWALE AND BIO-RETENTION PLAN VIEW (BASE BID)

0 5' 10' 20'
SCALE: 1" = 10'



WINDSOR AVENUE BIO-SWALE AND BIO-RETENTION PLAN VIEW (BASE BID)

0 5' 10' 20'
SCALE: 1" = 10'



LIBRARY FLOW THROUGH PLANTER PLAN VIEW (BID ALTERNATE 1)

0 5' 10' 20'
SCALE: 1" = 10'

REV	DATE	DESCRIPTION

PENNSYLVANIA REGISTERED LANDSCAPE ARCHITECT

WRA
Whitman, Requardt & Associates, LLP
1013 Centre Road, Suite 302, Wilmington, Delaware 19805

BOROUGH OF NARBERTH
DEPARTMENT OF PUBLIC WORKS
BOROUGH MANAGER DATE

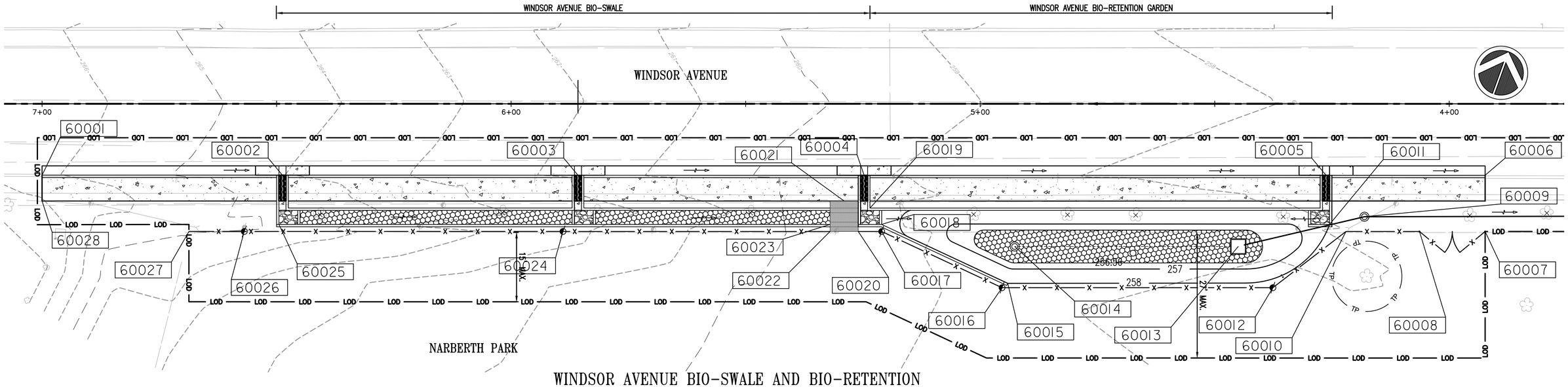
CONTRACT NO. N/A

NARBERTH GREEN STORMWATER INFRASTRUCTURE

SITE PLAN

DRAWING: SP-01

SHEET: 3 OF 12

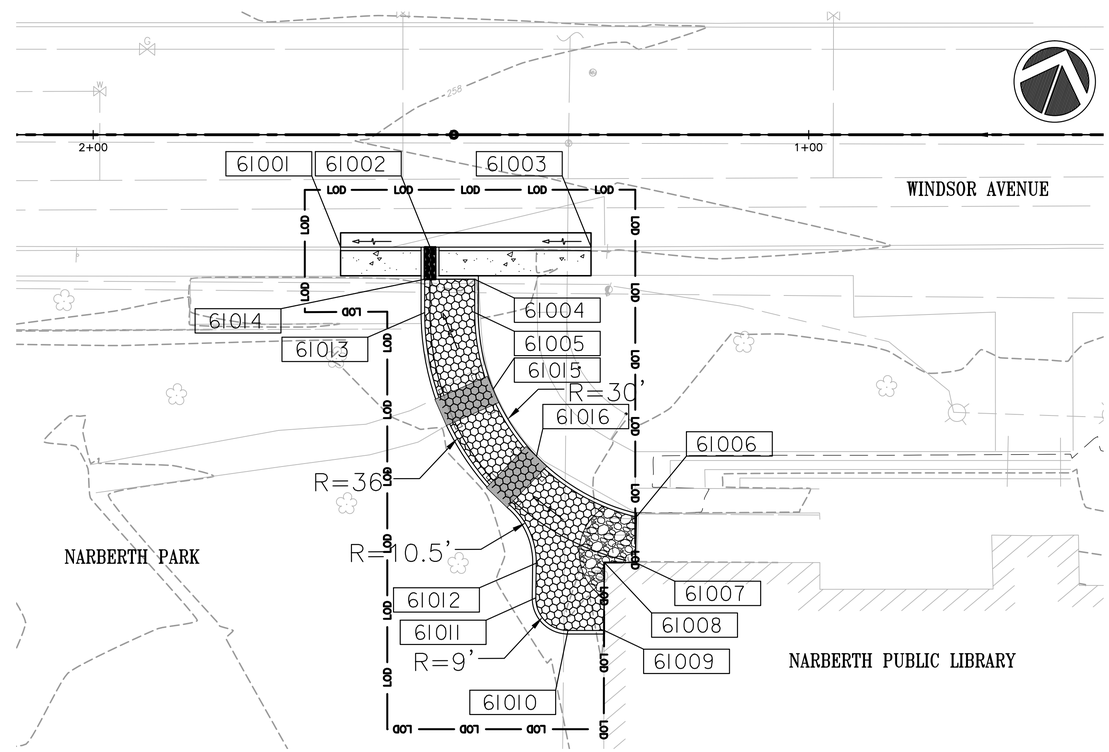


WINDSOR AVENUE BIO-SWALE AND BIO-RETENTION PLAN VIEW (BASE BID)

0 5' 10' 20'
SCALE: 1" = 10'

COORDINATE LIST		
POINT NO.	NORTHING	EASTING
60001	254492.39	2663824.09
60002	254509.73	2663872.32
60003	254531.05	2663931.60
60004	254551.69	2663989.00
60005	254585.01	2664081.67
60006	254596.49	2664113.60
60007	254585.20	2664117.66
60008	254580.46	2664104.48
60009	254579.46	2664092.37
60010	254575.16	2664089.74
60011	254575.39	2664085.93
60012	254558.59	2664079.13
60013	254564.37	2664069.21
60014	254548.25	2664024.37
60015	254540.34	2664025.63
60016	254539.06	2664024.80
60017	254541.66	2663996.59
60018	254543.08	2663996.08
60019	254545.52	2663992.55
60020	254539.97	2663991.89
60021	254545.07	2663986.86
60022	254537.94	2663986.24
60023	254539.35	2663985.73
60024	254518.67	2663932.65
60025	254499.59	2663875.16
60026	254495.68	2663868.71
60027	254491.69	2663857.62
60028	254487.21	2663825.95

COORDINATE LIST		
POINT NO.	NORTHING	EASTING
61001	254672.84	2664327.29
61002	254677.07	2664339.05
61003	254684.69	2664360.22
61004	254674.95	2664346.45
61005	254670.58	2664348.03
61006	254651.33	2664378.94
61007	254645.30	2664380.95
61008	254643.83	2664376.87
61009	254634.88	2664380.06
61010	254633.18	2664375.32
61011	254635.94	2664369.55
61012	254640.52	2664367.96
61013	254668.21	2664341.44
61014	254672.59	2664339.86
61015	254661.34	2664354.06
61016	254654.58	2664362.94



LIBRARY FLOW THROUGH PLANTER PLAN VIEW (BID ALTERNATE 1)

0 5' 10' 20'
SCALE: 1" = 10'

REV	DATE	DESCRIPTION

PENNSYLVANIA REGISTERED LANDSCAPE ARCHITECT

WRA
Whitman, Requardt & Associates, LLP
1013 Centre Road, Suite 302, Wilmington, Delaware 19805

BOROUGH OF NARBERTH
DEPARTMENT OF PUBLIC WORKS
BOROUGH MANAGER DATE

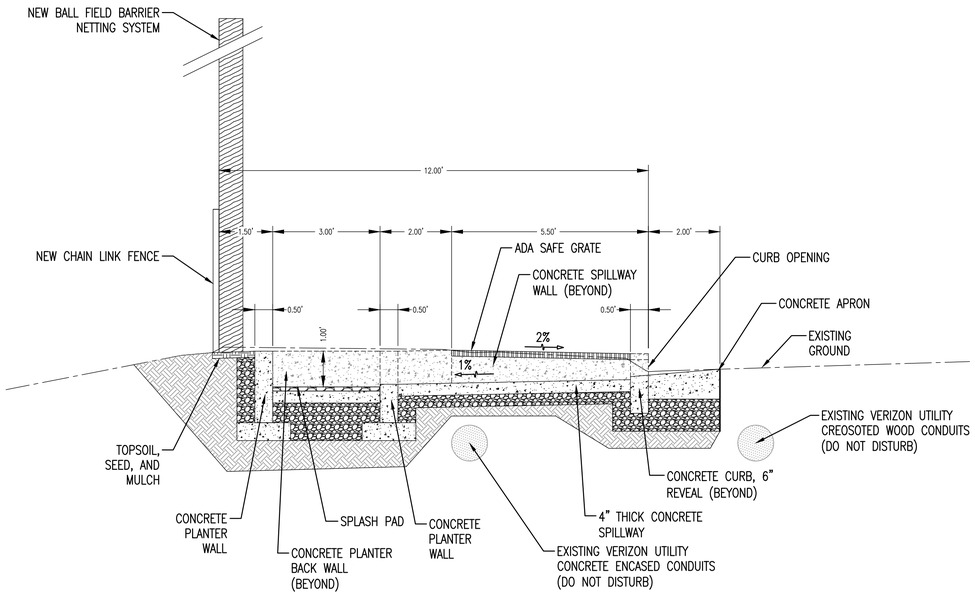
CONTRACT NO. N/A

NARBERTH GREEN STORMWATER INFRASTRUCTURE

SITE PLAN

DRAWING: SP-02

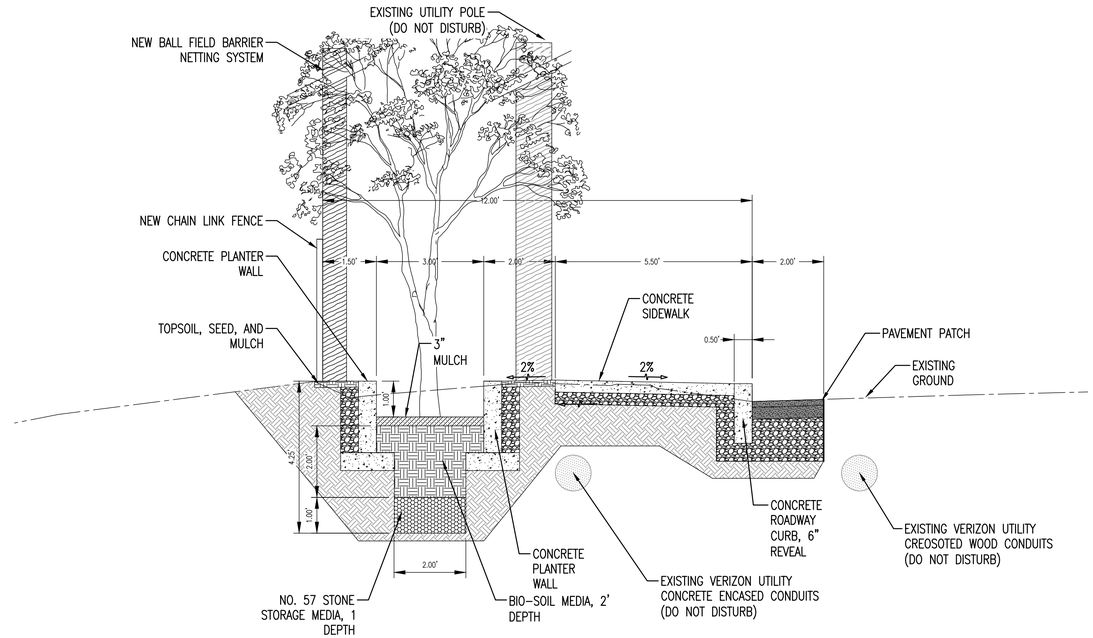
SHEET: 4 OF 12



BIO-SWALE CURB INLET NO. 1 SECTION STA. 6+48.75

0 1' 2' 4'

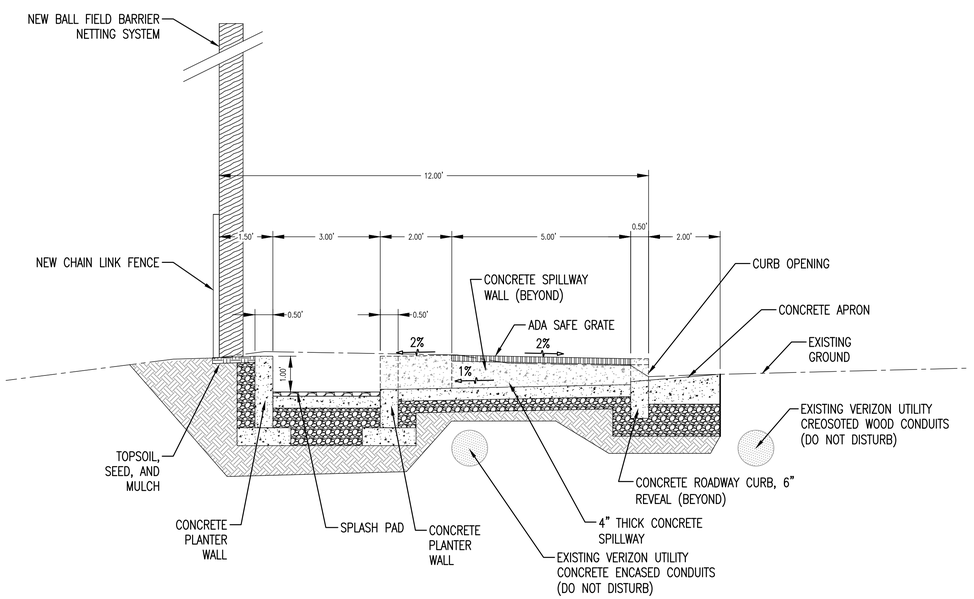
SCALE: 1" = 2'



BIO-SWALE TYPICAL SECTION STA. 6+15.00

0 1' 2' 4'

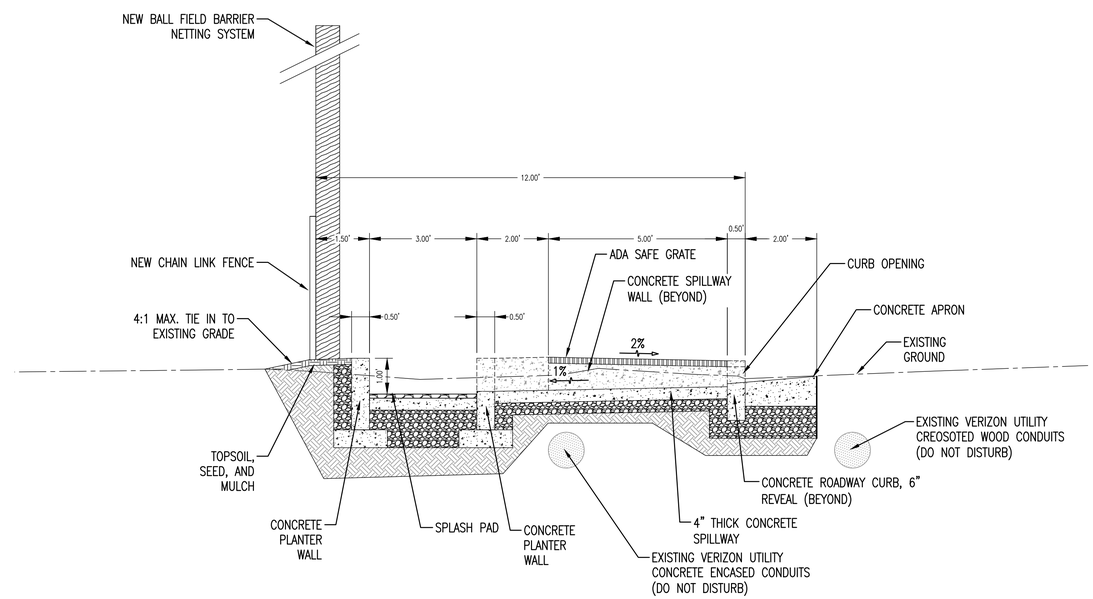
SCALE: 1" = 2'



BIO-SWALE CURB INLET NO. 2 SECTION STA. 5+90.00

0 1' 2' 4'

SCALE: 1" = 2'



BIO-SWALE CURB INLET NO. 3 SECTION STA. 5+24.75

0 1' 2' 4'

SCALE: 1" = 2'

REV	DATE	DESCRIPTION

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BOROUGH OF NARBERTH
DEPARTMENT OF PUBLIC WORKS

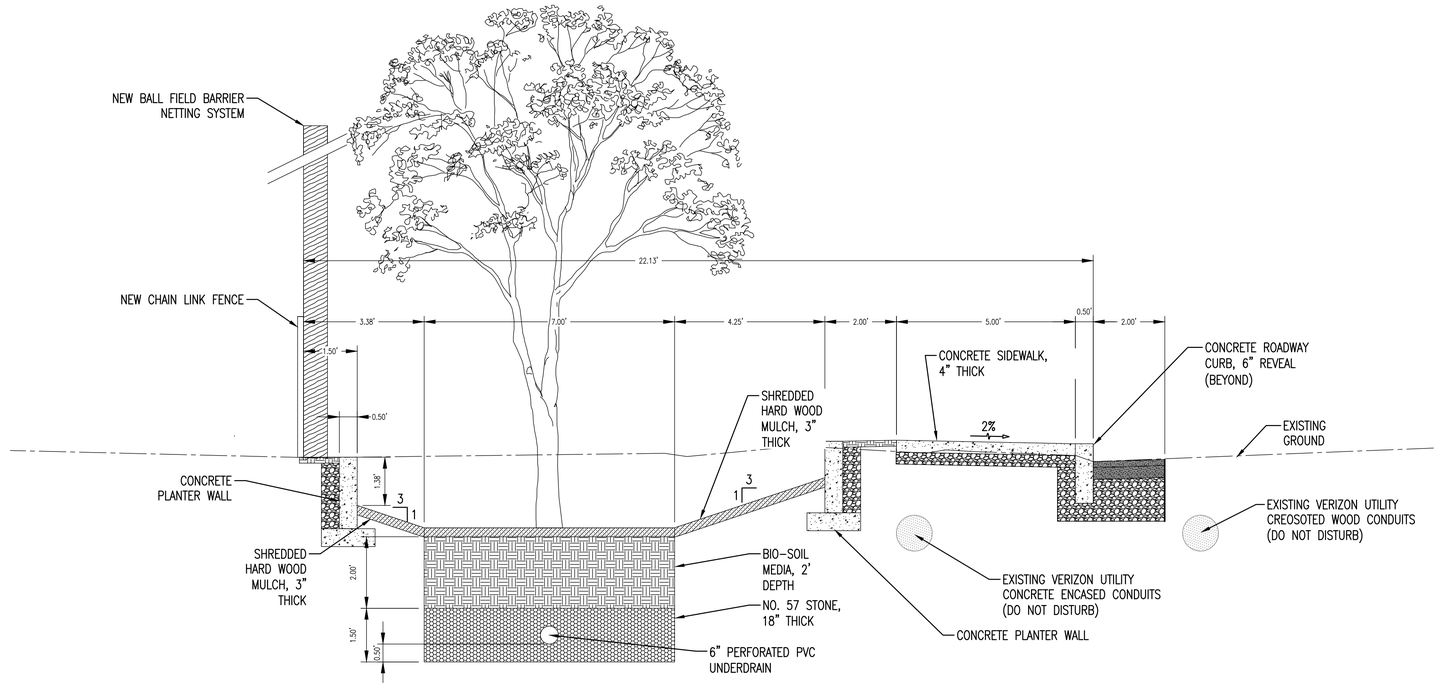
BOROUGH MANAGER DATE

CONTRACT NO. N/A

NARBERTH GREEN STORMWATER INFRASTRUCTURE

TYPICAL SECTIONS

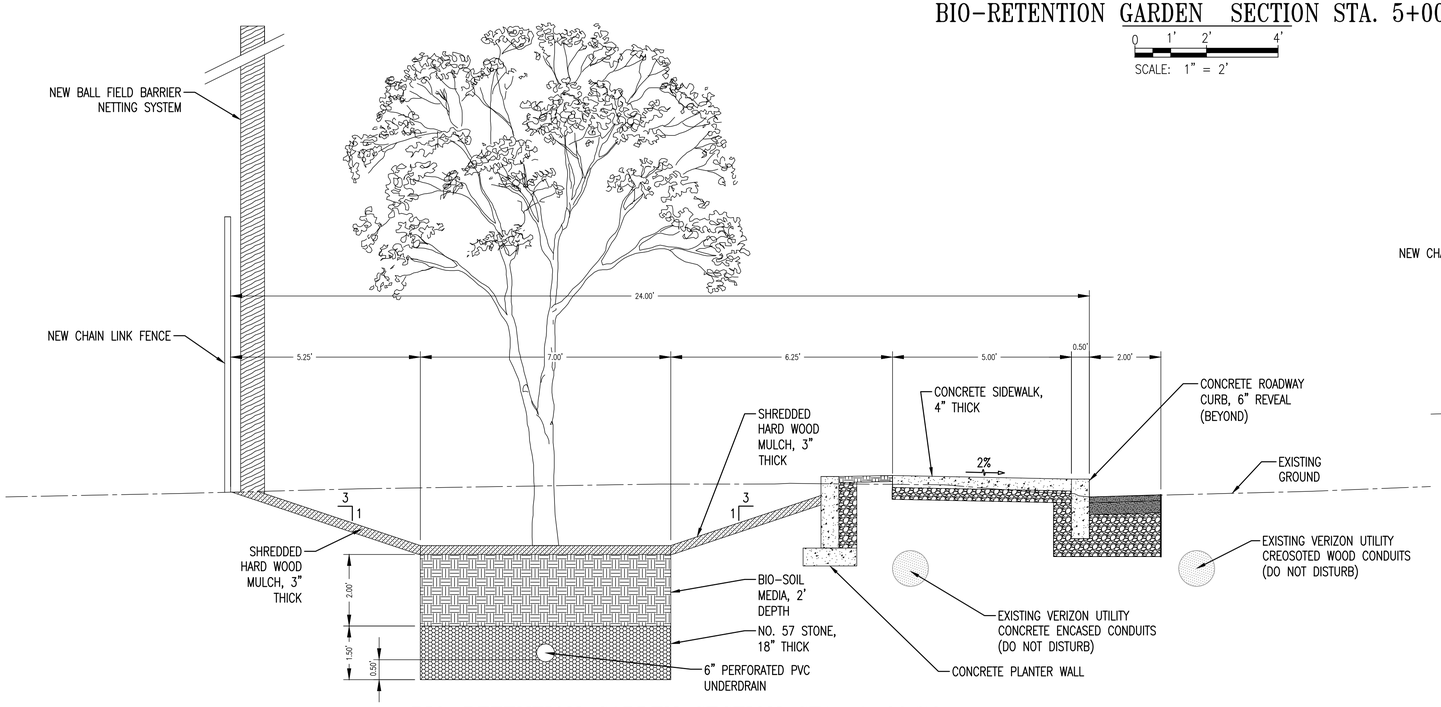
DRAWING	SHEET
TS-01	5 OF 12



BIO-RETENTION GARDEN SECTION STA. 5+00.00

0 1' 2' 4'

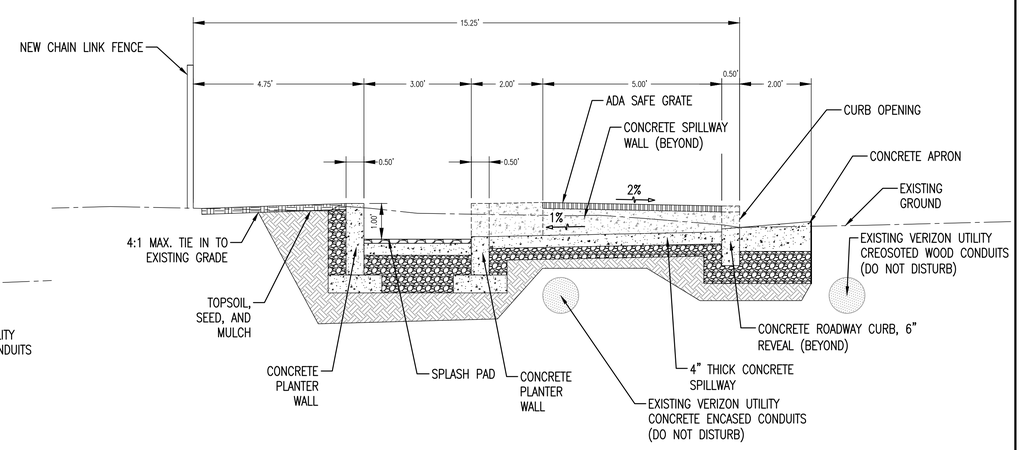
SCALE: 1" = 2'



BIO-RETENTION GARDEN SECTION STA. 4+69.76

0 1' 2' 4'

SCALE: 1" = 2'



CURB INLET NO. 4 SECTION STA. 4+26.27

0 1' 2' 4'

SCALE: 1" = 2'

REV	DATE	DESCRIPTION

PENNSYLVANIA CERTIFICATE OF REGISTRATION LANDSCAPE ARCHITECT

Whitman, Requardt & Associates, LLP
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BOROUGH OF NARBERTH
DEPARTMENT OF PUBLIC WORKS

BOROUGH MANAGER DATE

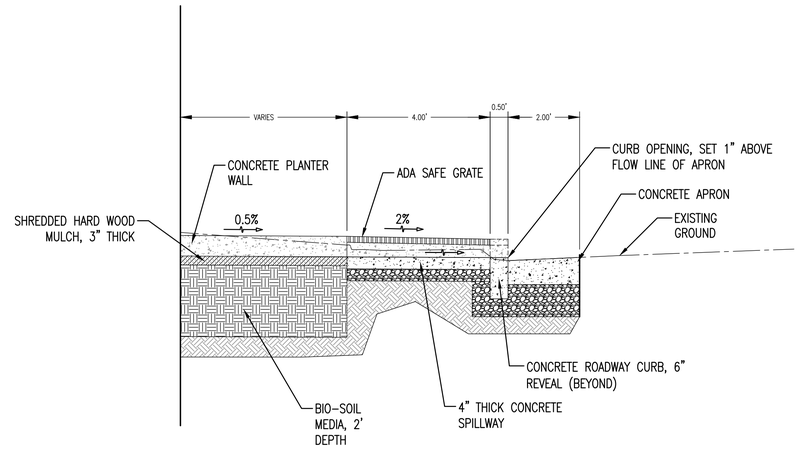
CONTRACT NO. N/A

NARBERTH GREEN STORMWATER INFRASTRUCTURE

TYPICAL SECTIONS

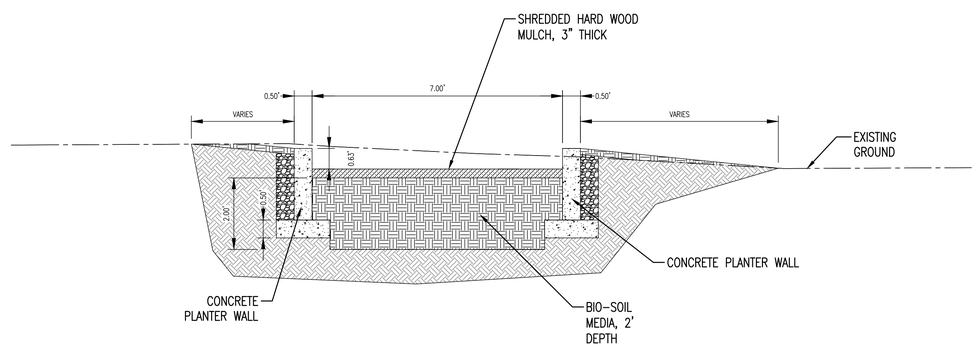
DRAWING: TS-02

SHEET: 6 OF 12



LIBRARY FLOW THROUGH PLANTER
CURB OUTLET TYPICAL SECTION STA. 1+53 (BID ALTERNATE 1)

0 1' 2' 4'
SCALE: 1" = 2'



LIBRARY FLOW THROUGH PLANTER
TYPICAL SECTION (BID ALTERNATE 1)

0 1' 2' 4'
SCALE: 1" = 2'

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BOROUGH OF NARBERTH
DEPARTMENT OF PUBLIC WORKS
BOROUGH MANAGER DATE

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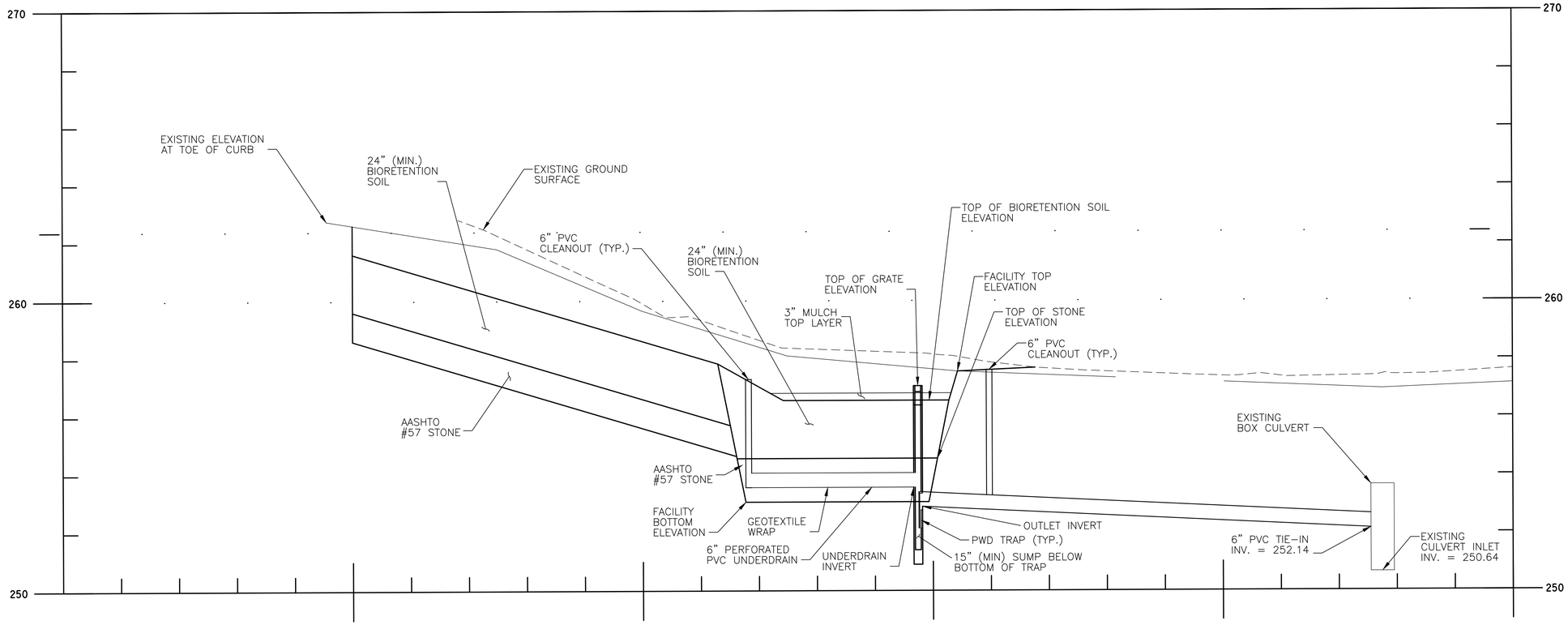
NARBERTH GREEN STORMWATER INFRASTRUCTURE

TYPICAL SECTIONS

REV	DATE	DESCRIPTION

DRAWING	SHEET
TS-03	7 OF 12



STORM DRAIN PROFILE

BIOINFILTRATION/BIORETENTION BASIN ELEVATIONS						
FACILITY TOP ELEVATION	FACILITY BOTTOM ELEVATION	TOP OF STONE ELEVATION	TOP OF MEDIA ELEVATION	TOP OF GRATE ELEVATION	UNDERDRAIN INVERT	OUTLET INVERT
257.56	253.06	254.56	256.56	257.06	253.56	252.93

NOTES:

TEXTURE OF PLANTING SOIL SHOULD CONFORM TO THE CLASSIFICATION WITHIN THE USDA TRIANGLE FOR SANDY LOAM OR LOAMY SAND. PLANTING SOIL SHOULD BE A MIXTURE OF SAND, SILT, AND CLAY PARTICLES AS REQUIRED TO MEET THE CLASSIFICATION. RANGES OF PARTICLE SIZE DISTRIBUTION, AS DETERMINED BY PIPETTE METHOD IN COMPLIANCE WITH ASTM F-1632:

SAND	(0.05-2.0mm)	50-85%
SILT	(0.002-0.05mm)	40% MAXIMUM
CLAY	(<0.002mm)	10% MAXIMUM
GRAVEL	(2.0-12.7mm)	15% MAXIMUM

PLANTING SOIL SHOULD BE SCREENED AND FREE OF STONES LARGER THAN A HALF-INCH (1/2"; 12.7mm) IN ANY DIMENSION. NO MORE THAN TEN PERCENT (10%) OF THE SOIL SHOULD BE COMPOSED OF PEDS GREATER THAN ONE INCH (1").

CLODS, OR NATURAL CLUMPS OF SOIL, GREATER THAN THREE INCHES (3") IN ANY DIMENSION SHOULD BE ABSENT FROM THE PLANTING SOIL. SMALL CLODS RANGING FROM ONE TO THREE INCHES (1-3") AND PEDS, NATURAL SOIL CLUMPS UNDER ONE INCH (1") IN ANY DIMENSION, MAY BE PRESENT BUT SHOULD NOT MAKE UP MORE THAN TEN PERCENT (10%) OF THE SOIL BY VOLUME.

THE pH OF THE PLANTING SOIL SHOULD HAVE A RANGE 5.8-7.1.

SOLUBLE SALTS SHOULD BE LESS THAN 2.0 mmhos/cm (ds/m), TYPICALLY AS MEASURED BY 1:2 SOIL-WATER RATIO BASIC SOIL SALINITY TESTING. SODIC SOILS (EXCHANGEABLE SODIUM PERCENTAGE (ESP) GREATER THAN 15 AND/OR SODIUM ADSORPTION RATIO (SAR) GREATER THAN 13) SHALL NOT BE ACCEPTABLE FOR USE REGARDLESS OF AMENDMENT.

ORGANIC CONTENT OF PLANTING SOIL SHOULD HAVE A RANGE OF THREE TO FIFTEEN PERCENT (3-15%) BY WEIGHT AS DETERMINED BY LOSS ON IGNITION (ASTM D2974). TO ADJUST ORGANIC CONTENT, PLANTING SOIL MAY BE AMENDED, PRIOR TO PLACING AND FINAL GRADING, WITH THE ADDITION OF ORGANIC COMPOST.

ALL AGGREGATE WITHIN THE STONE STORAGE BED SHALL BE CLEAN-WASHED, DEFINED AS HAVING LESS THAN 0.5% WASH LOSS, BY MASS, WHEN TESTED PER THE AASHTO T-11 WASH LOST TEST.

REV	DATE	DESCRIPTION

Whitman, Requardt & Associates, LLP
1013 Centre Road, Suite 302, Wilmington, Delaware 19805

BOROUGH OF NARBERTH
DEPARTMENT OF PUBLIC WORKS

BOROUGH MANAGER DATE

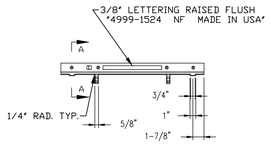
CONTRACT NO. N/A

NARBERTH GREEN STORMWATER INFRASTRUCTURE

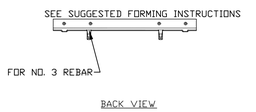
STORMWATER MANAGEMENT PROFILE

DRAWING SW-01

SHEET 8 OF 12

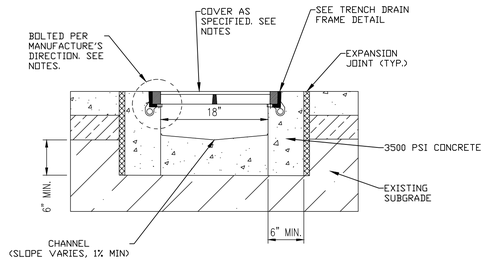


FRONT VIEW



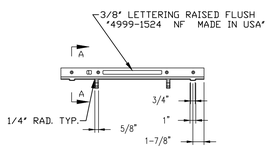
BACK VIEW

NOTES:
1. MUST BE HEEL SAFE AND ADA COMPLIANT
2. MUST BE H-20 LOADING
3. MUST BE BOLTABLE

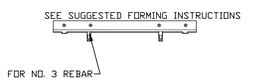


SECTION

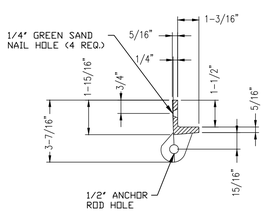
CURB INLET TRENCH DRAIN ASSEMBLY



FRONT VIEW



BACK VIEW

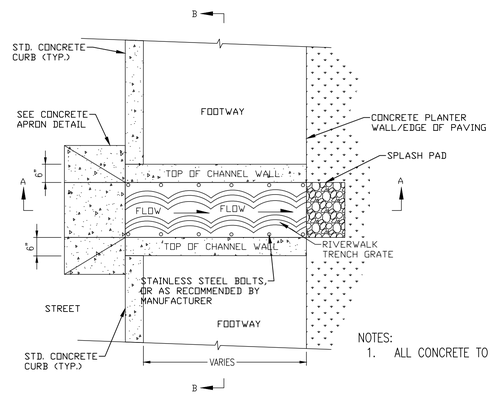


SECTION A-A

MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35-B
FINISH: NO PAINT
WEIGHT: 7#

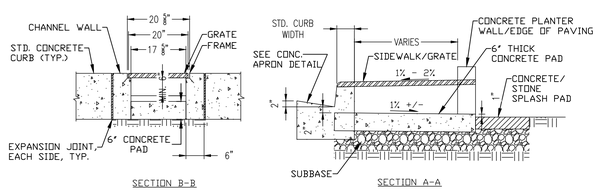
MANUFACTURER: NEENAH FOUNDRY COMPANY
OR APPROVED EQUAL; NF-49991524
R-4999-AX TO HX 1-1/2" X 24" LONG TYPE "X" FRAME

CURB INLET TRENCH DRAIN FRAME



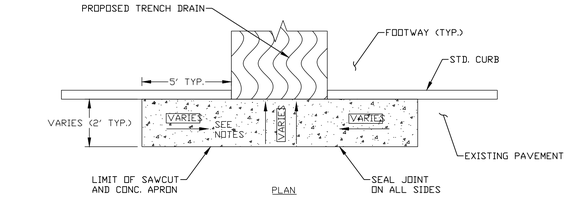
PLAN

NOTES:
1. ALL CONCRETE TO BE 3500 PSI.

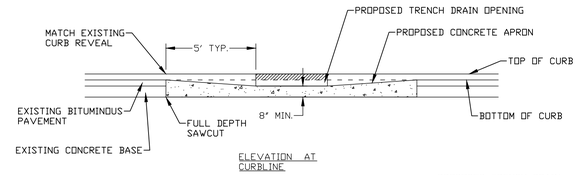


SECTION B-B SECTION A-A

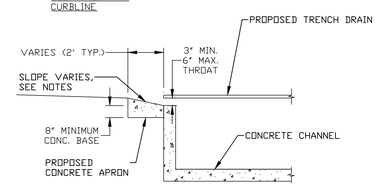
CURB INLET TRENCH DRAIN



PLAN



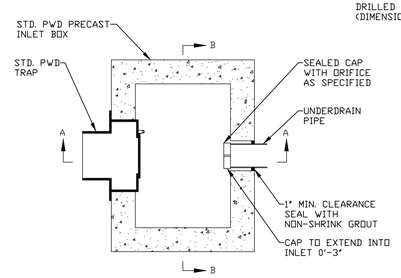
ELEVATION AT CURBLINE

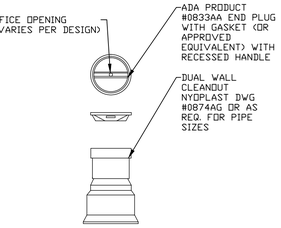


SECTION

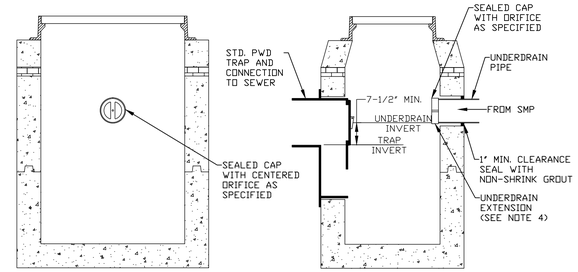
NOTES:
1. MAXIMUM SLOPE OF APRON PARALLEL TO CURB IS 2%
2. MAXIMUM SLOPE OF APRON PERPENDICULAR TO CURB IS 15%

CONCRETE APRON AT TRENCH DRAIN





NOTES:
1. TO BE SET IN PWD INLET WITH RECESSED CONTROL STRUCTURE.

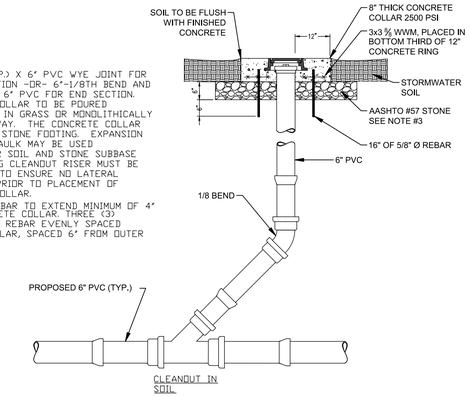


SECTION B-B SECTION A-A

NOTES:
1. ALL CONCRETE COMPONENTS, INLET GRATE AND FRAME, INLET TRAP, AND CONNECTION TO SEWER SHALL BE PWD STANDARD CONSTRUCTION.
2. HIGHWAY INLET DEPICTED; DESIGN IS GENERALLY APPLICABLE TO ALL PWD STANDARD INLETS.
3. THIS INLET HAS A SEWER CONNECTION AND AN UNDERDRAIN ONLY FROM A STORMWATER SYSTEM (SMP).
4. TOTAL EXTENSION OF UNDERDRAIN AND CAP ASSEMBLY INTO INLET TO BE 0'-3' FROM INLET WALL TO END OF CAP

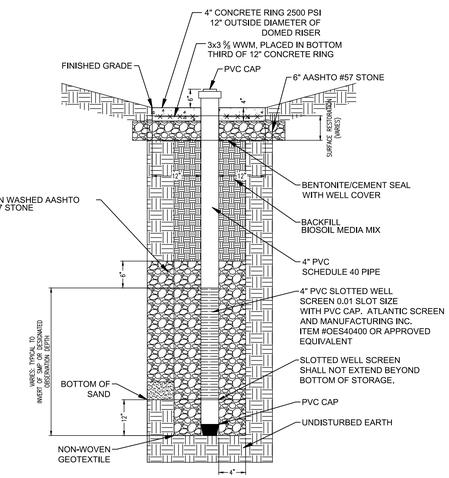
BIORETENTION GARDEN OVERFLOW OUTLET AND PIPE CONNECTION

NOTES:
1. 6" PVC (TYP.) X 6" PVC WYE JOINT FOR INLINE SECTION -OR- 6"-1/8TH BEND AND 6" HDPE TO 6" PVC FOR END SECTION.
2. CONCRETE COLLAR TO BE POURED SINGULARLY IN GRASS OR MONOLITHICALLY WITH FOOTWAY. THE CONCRETE COLLAR MUST HAVE STONE FOOTING. EXPANSION JOINT OR CAULK MAY BE USED
3. STORMWATER SOIL AND STONE SUBBASE SURROUNDING CLEANOUT RISER MUST BE COMPACTED TO ENSURE NO LATERAL MOVEMENT PRIOR TO PLACEMENT OF CONCRETE COLLAR.
4. ⅝" DIA REBAR TO EXTEND MINIMUM OF 4" INTO CONCRETE COLLAR. THREE (3) LENGTHS OF REBAR EVENLY SPACED AROUND COLLAR, SPACED 6" FROM OUTER EDGE.

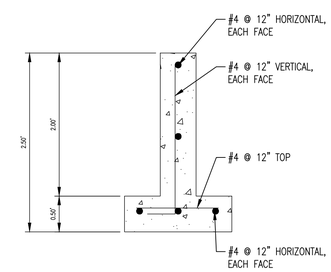


CLEANOUT IN SOIL

CLEANOUT



OBSERVATION WELL



NOTES:
1) BOTH BIO-SWALE (BASE BID) AND FLOW THROUGH PLANTER (BID ALTERNATE 1) PLANTER WALLS SHOWN.
2) CONCRETE SHALL BE CLASS AAA CONCRETE WITH A 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.
3) PROVIDE REINFORCEMENT CONFORMING TO ASTM A615 GRADE 60 DEFORMED BARS.
4) SUBMIT REINFORCEMENT STEEL DETAIL SHOP DRAWINGS AND RECIEVE APPROVAL BEFORE FABRICATION.

LANDSCAPE PLANTER WALL

REV	DATE	DESCRIPTION

PENNSYLVANIA REGISTERED LANDSCAPE ARCHITECT

WRA
Whitman, Requardt & Associates, LLP
1013 Centre Road, Suite 302, Wilmington, Delaware 19805

BOROUGH OF NARBERTH
DEPARTMENT OF PUBLIC WORKS
BOROUGH MANAGER DATE

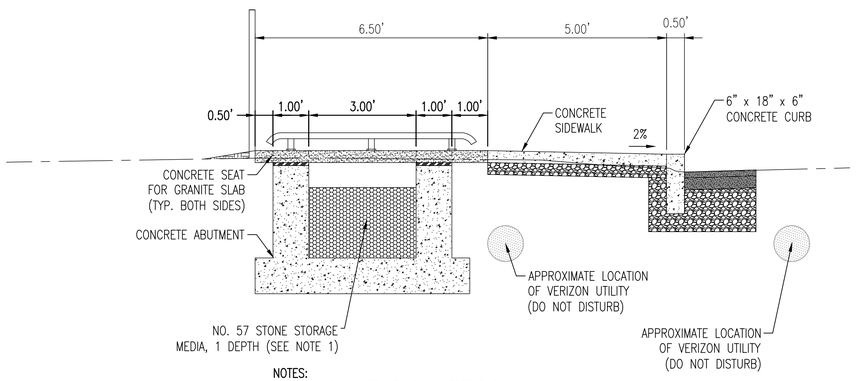
CONTRACT NO. N/A

NARBERTH GREEN STORMWATER INFRASTRUCTURE

CONSTRUCTION DETAILS

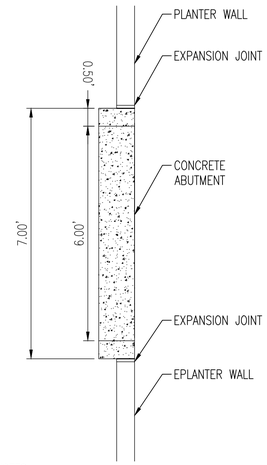
DRAWING: DT-01

SHEET: 9 OF 12



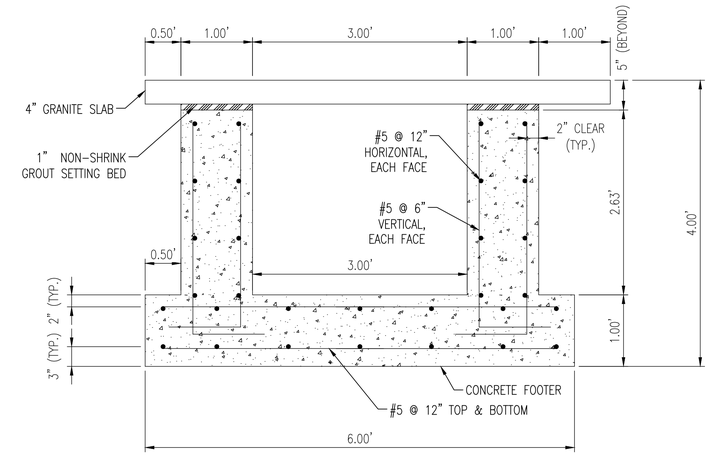
NOTES:
1. WRAP NO. 57 STONE IN GEOTEXTILE ON ALL VERTICAL SIDES AND BOTTOM.
2. ELEVATION SHOWN IS FOR BIO-SWALE (BASE BID).

ELEVATION VIEW A-A
NOT TO SCALE



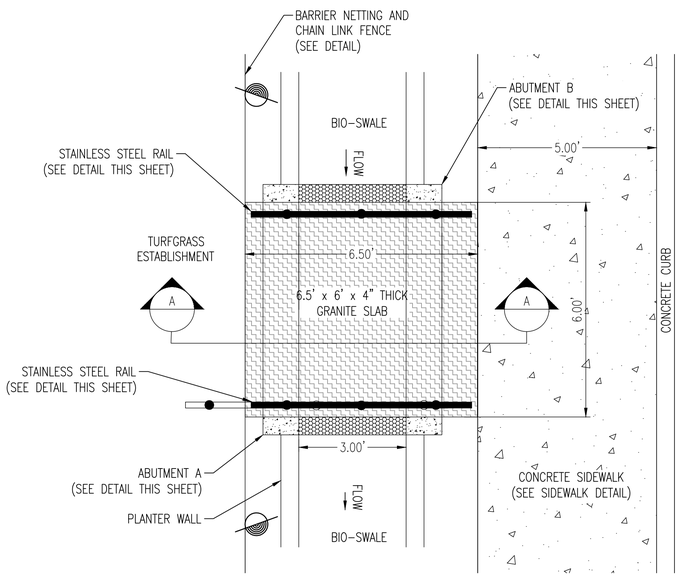
NOTES:
1. BIO-SWALE (BASE BID) LEFT ABUTMENT SHOWN, RIGHT ABUTMENT IS A MIRROR OPPOSITE IN PLAN VIEW. FLOW THROUGH LIBRARY PLANTER (BID ALTERNATE 1) ABUTMENTS ARE 1' WIDE x 5' LONG.
2. FOOTER NOT SHOWN FOR CLARITY.

BRIDGE ABUTMENT DETAIL
NOT TO SCALE



NOTES:
1) ELEVATION SHOWN IS FOR BIO-SWALE (BASE BID). LIBRARY FLOW-THROUGH PLANTER (BID ALTERNATE 1) IS SIMILAR WITH AN INTERMEDIATE ABUTMENT AND 3' SPANS ON EITHER SIDE.
2) CONCRETE SHALL BE CLASS AAA CONCRETE WITH A 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.
3) PROVIDE REINFORCEMENT CONFORMING TO ASTM A615 GRADE 60 DEFORMED BARS.
4) SUBMIT REINFORCEMENT STEEL DETAIL SHOP DRAWINGS AND RECIEVE APPROVAL BEFORE FABRICATION.

CONCRETE ABUTMENT - ELEVATION VIEW
NOT TO SCALE



PLAN VIEW
NOT TO SCALE

GENERAL NOTES:
1) PLAN VIEW SHOWN IS FOR BIO-SWALE (BASE BID). FOR LIBRARY FLOW THROUGH PLANTER (BID ALTERNATE 1) GRANITE SLAB SHALL BE 4' W x10' L x 4" THICK WITH 3 ABUTMENTS PER STRUCTURE.
2) LOCATION OF THE PEDESTRIAN BRIDGE SHALL BE STAKED OUT IN THE FIELD A MINIMUM OF 3 DAYS PRIOR TO INSTALLATION.
3) CONTRACTOR SHALL SUBMIT GRANITE SOURCE FOR APPROVAL PRIOR TO PURCHASE.
4) GRANITE SPECIFICATIONS ARE AS FOLLOWS:

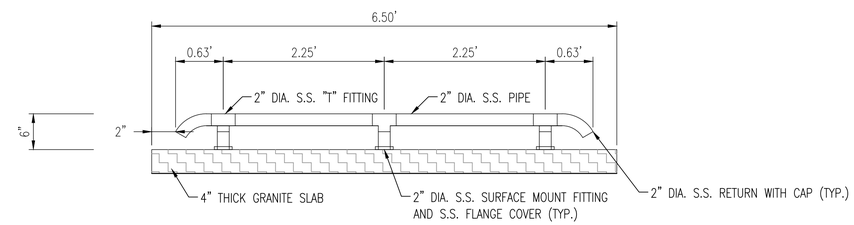
SUPPLIER: ROCK OF AGES CORP.
560 GRANITEVILLE, VT 05654
800-421-0166
WWW.ROCKOFAGES.COM

OR APPROVED EQUAL

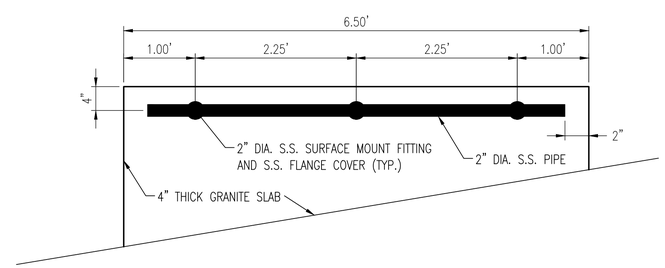
MATERIAL: GRANITE - BARRE GRAY, FLAMED FINISH

OR APPROVED EQUAL MEETING THE FOLLOWING ASTM TESTING REQUIREMENTS:

ASTM C97 AVERAGE ABSORPTION (%): 0.210
ASTM C170 AVERAGE COMPRESSIVE STRENGTH (PSI): 23,645
ASTM C99 AVERAGE MODULUS OF RUPTURE (PSI): 2,393
ASTM C880 AVERAGE FLEXURAL STRENGTH (PSI): 2,172



STAINLESS STEEL RAIL SIDE VIEW
NOT TO SCALE



STAINLESS STEEL RAIL TOP VIEW
NOT TO SCALE

NOTES:
1) DETAILS SHOWN ARE FOR BIO-SWALE (BASE BID). FOR LIBRARY FLOW THROUGH PLANTER (BID ALTERNATE 1), CONTRACTOR SHALL PROVIDE ADDITIONAL SURFACE MOUNT FITTINGS AND LENGTH OF RAILING FOR 10' LONG BRIDGE.
2) ALL MATERIALS INCLUDING ALL FASTENERS SHALL BE STAINLESS STEEL GRADE 304 UNLESS OTHERWISE INDICATED.
3) ALL WELDS SHALL BE PERFORMED IN THE SHOP AND IN ACCORDANCE WITH INDUSTRY STANDARDS.
4) ALL RAILING COMPONENTS SHALL BE STAINLESS STEEL.
5) SURFACE MOUNT RAILING TO GRANITE SLAB ACCORDING TO MANUFACTURERS SPECIFICATIONS.
6) FINAL MOUNTED RAILING ASSEMBLY SHALL MEET PEDESTRIAN LOADING REQUIREMENTS.
7) SHOP DRAWINGS SHALL BE SUBMITTED AND APPROVED BY THE BOROUGH PRIOR TO FABRICATION.

PEDESTRIAN BRIDGE DETAIL

Whitman, Requardt & Associates, LLP
1013 Centre Road, Suite 302, Wilmington, Delaware 19805

BOROUGH OF NARBERTH
DEPARTMENT OF PUBLIC WORKS
BOROUGH MANAGER DATE

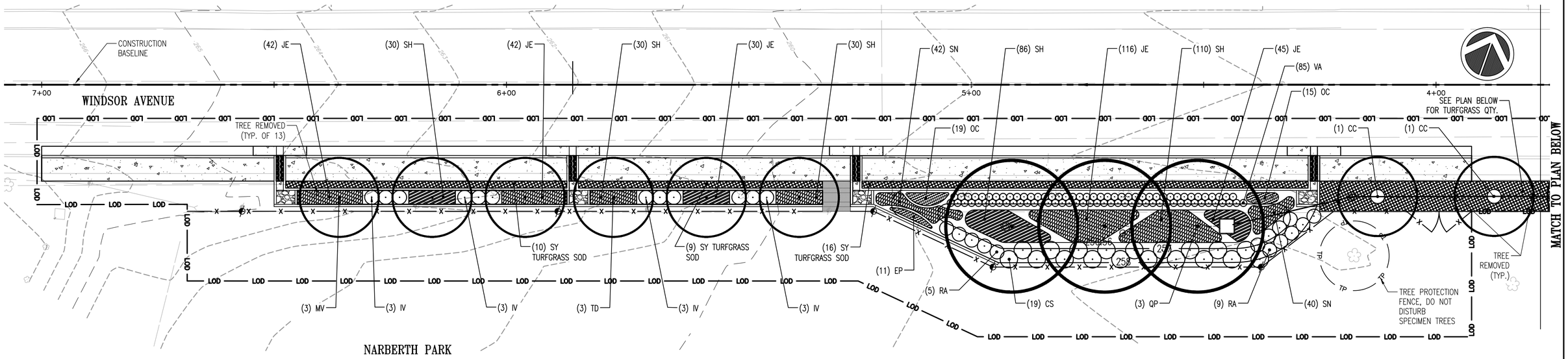
CONTRACT NO. N/A

NARBERTH GREEN STORMWATER INFRASTRUCTURE

CONSTRUCTION DETAILS

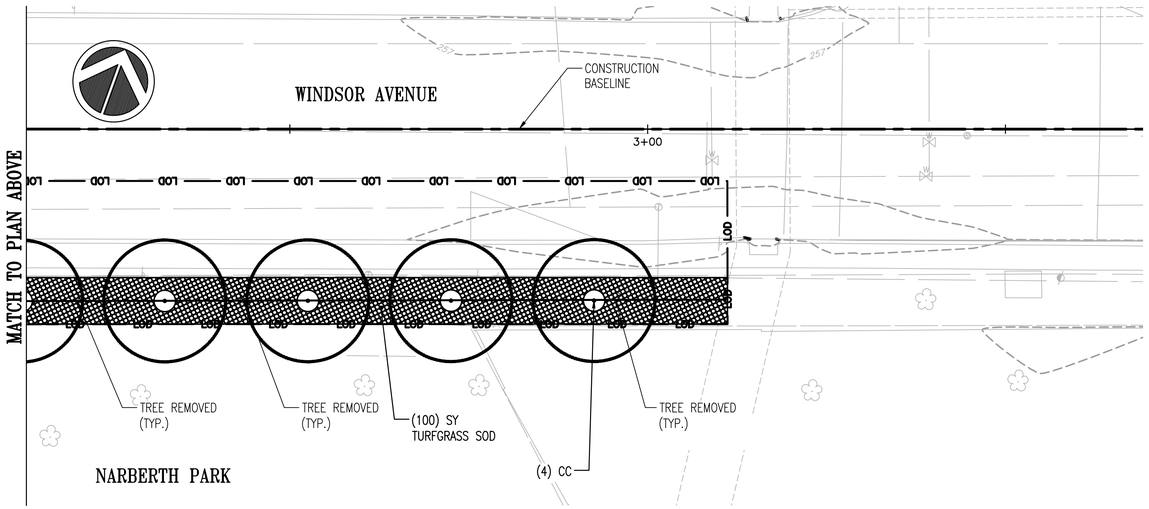
REV	DATE	DESCRIPTION

DRAWING	SHEET
DT-02	10 OF 12



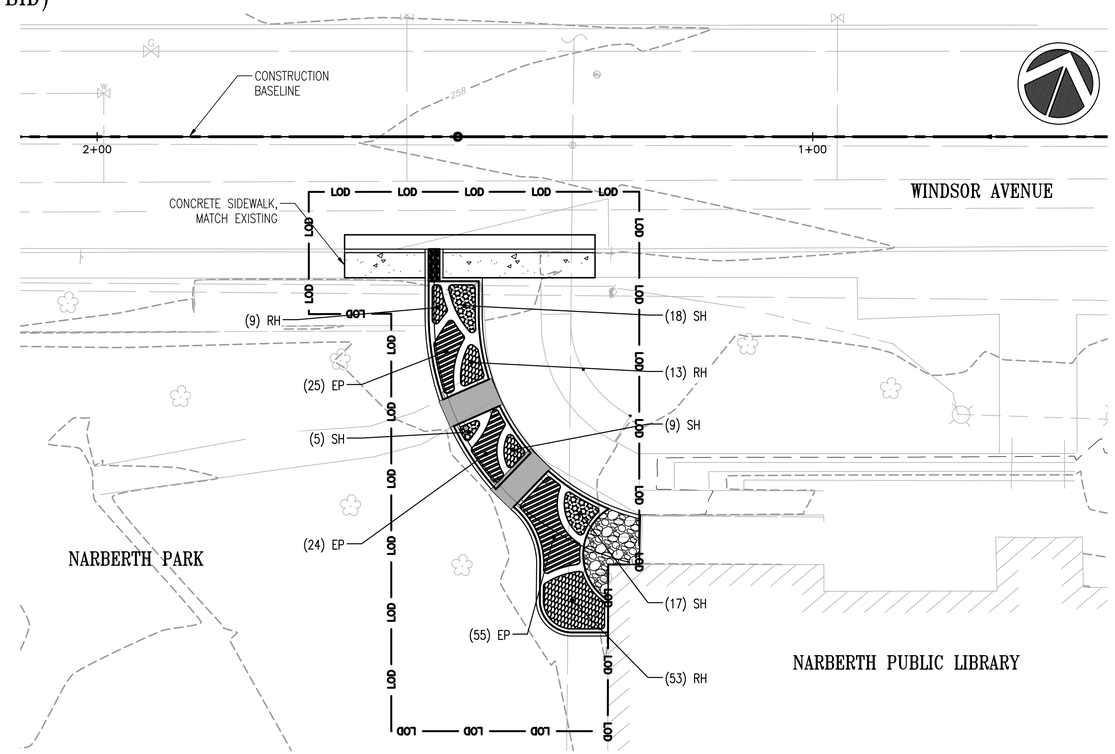
WINDSOR AVENUE BIO-SWALE AND BIO-RETENTION LANDSCAPE PLAN VIEW (BASE BID)

0 5' 10' 20'
SCALE: 1" = 10'



WINDSOR AVENUE BIO-SWALE AND BIO-RETENTION LANDSCAPE PLAN VIEW (BASE BID)

0 5' 10' 20'
SCALE: 1" = 10'



LIBRARY FLOW THROUGH PLANTER LANDSCAPE PLAN VIEW (BID ALTERNATE 1)

0 5' 10' 20'
SCALE: 1" = 10'

LANDSCAPE LEGEND

- MAJOR/MEDIUM/SHADE TREE
- LARGE/MEDIUM/SMALL SHRUB
- GROUNDCOVER/PERENNIAL/ORNAMENTAL GRASS
- TURFGRASS SOD

REV	DATE	DESCRIPTION

PENNSYLVANIA REGISTERED LANDSCAPE ARCHITECT

Whitman, Requardt & Associates, LLP
1013 Centre Road, Suite 302, Wilmington, Delaware 19805

BOROUGH OF NARBERTH
DEPARTMENT OF PUBLIC WORKS
BOROUGH MANAGER DATE

CONTRACT NO. N/A

NARBERTH GREEN STORMWATER INFRASTRUCTURE

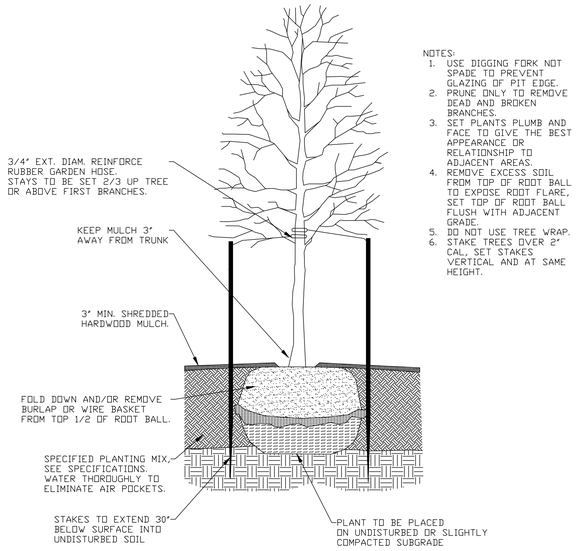
LANDSCAPE PLAN

DRAWING: LS-01

SHEET: 11 OF 12

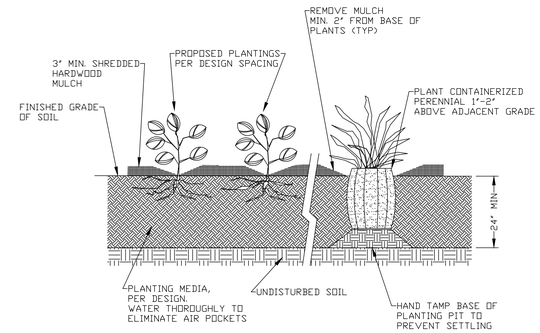
LANDSCAPE NOTES

1. RESEED ALL DISTURBED AREAS.
2. ADJUST LOCATIONS OF PLANTS AS NECESSARY TO AVOID DAMAGE TO EXISTING UNDERGROUND UTILITIES AND EXISTING ABOVE GROUND ELEMENTS. ADJUSTMENTS SHALL BE COMPLETED AT CONTRACTOR'S EXPENSE AND SHALL BE COORDINATED WITH THE BOROUGH.
3. LANDSCAPE SUBCONTRACTOR SHALL COORDINATE WORK WITH THE GENERAL CONTRACTOR AND ALL OTHER TRADES.
4. ALL PLANTS SHALL BE IN FULL AND STRICT COMPLIANCE WITH THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1–1996 OR LATER EDITION).
5. THE CONTRACTOR SHALL PAY FOR AND SUBMIT RESULTS OF ALL TESTING OF SOILS, AMENDMENTS, ETC. ASSOCIATED WITH THE WORK IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS PRIOR TO THE COMMENCEMENT OF PLANTING.
6. PLANT SIZES IN THE PLANT SCHEDULE ARE TO BE CONSIDERED MINIMUM SIZES. LARGER PLANT SIZES MUST BE APPROVED BY THE BOROUGH AND SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
7. THE PLANT SCHEDULE IDENTIFIES PLANT SPECIES AND QUANTITIES FOR EACH LOCATION. APPROXIMATE SPACING IS AS SHOWN ON THE PLANTING PLANS.
8. IF REQUESTED BY THE BOROUGH, THE CONTRACTOR SHALL ENSURE PLANTS ARE TAGGED FOR REVIEW AND APPROVAL PRIOR TO ORDERING. APPROVAL OF PLANTS AT OFF-SITE LOCATIONS DOES NOT IMPLY FINAL APPROVAL OF PLANTS AT TIME OF DELIVERY OR AT THE TIME OF INSTALLATION.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING WATER AND HAND WATERING OF PLANTS AFTER INSTALLATION AND UP TO FINAL COMPLETION OF THE PROJECT, AND FOR THE MAINTENANCE PERIOD (SEE SPECIFICATIONS).



NOTES:
1. USE DIGGING FORK NOT SPADE TO PREVENT GLAZING OF PIT EDGE.
2. PRUNE ONLY TO REMOVE DEAD AND BROKEN BRANCHES.
3. SET PLANTS PLUMB AND FACE TO GIVE THE BEST APPEARANCE OR RELATIONSHIP TO ADJACENT AREAS.
4. REMOVE EXCESS SOIL FROM TOP OF ROOT BALL TO EXPOSE ROOT FLARE, SET TOP OF ROOT BALL FLUSH WITH ADJACENT GRADE.
5. DO NOT USE TREE WRAP.
6. STAKE TREES OVER 2" CAL. SET STAKES VERTICAL AND AT SAME HEIGHT.

TREE PLANTING DETAIL



NOTES:
1. MINIMIZE SOIL COMPACTION TO PRESERVE INFILTRATION CAPACITY OF SOIL.
2. SET PLANTS PLUMB AND FACE TO GIVE BEST APPEARANCE TO ADJACENT AREAS.

SHRUB PLANTING DETAIL

M	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER SIZE	SPACING	QUANTITIES	TOTALS
TREE SPECIES							
CC	CERCIS CANADENSIS	EASTERN REDBUD	1.5" CAL. B&B		PER PLAN	6	6
MV	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	3" CAL. B&B		PER PLAN	3	3
QP	QUERCUS PHELLOS	WILLOW OAK	3" CAL. B&B		PER PLAN	3	3
TD	TAXODIUM DISTICHUM	BALD CYPRESS	3" CAL. B&B		PER PLAN	3	3
SHRUB SPECIES							
CS	CORNUS SERICEA 'CARDINAL'	RED TWIG DOGWOOD		#5	36" O.C.	19	19
IV	ITEA VIRGINICA 'HENRY'S GARNET'	VIRGINIA SWEETSPIRE		#5	36" O.C.	12	12
RA	RHUS AROMATICA	FRAGRANT SUMAC		#3	24" O.C.	14	14
VA	VACCINIUM ANGUSTIFOLIUM	LOWBUSH BLUEBERRY		#3	24" O.C.	85	85
PERENNIAL/GRASS/GROUNDCOVER SPECIES							
EP	ECHINACEA PURPUREA	EASTERN PURPLE CONEFLOWER		#2	12" O.C.	11	11
JE	JUNCUS EFFUSUS	SOFT RUSH		#3	12" O.C.	275	275
OC	OSMUNDA CINNAMOMEA	CINNAMON FERN		#1	12" O.C.	34	34
SH	SPOROBOLUS HETEROLEPIS	PRAIRIE DROPSEED		#3	12" O.C.	286	286
SN	SYMPHYOTRICHUM NOVI-BELGII	NEW YORK ASTER		#1	12" O.C.	82	82
SOD	N/A	TURFGRASS SOD (SY)				135	135

BIO-SWALE AND BIORETENTION GARDEN PLANTING SCHEDULE (BASE BID)

KEY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER SIZE	SPACING	QUANTITIES	TOTALS
PERENNIAL/GRASS/GROUNDCOVER SPECIES							
EP	ECHINACEA PURPUREA	EASTERN PURPLE CONEFLOWER		#2	12" O.C.	104	104
RH	RUDBECKIA HIRTA	BLACK-EYED SUSAN		#2	12" O.C.	75	75
SH	SPOROBOLUS HETEROLEPIS	PRAIRIE DROPSEED		#3	12" O.C.	49	49

LIBRARY FLOW THROUGH PLANTER PLANTING SCHEDULE (BID ALTERNATE 1)

Whitman, Requardt & Associates, LLP
1013 Centre Road, Suite 302, Wilmington, Delaware 19805

BOROUGH OF NARBERTH
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BOROUGH MANAGER DATE

CONTRACT NO. N/A

NARBERTH GREEN STORMWATER INFRASTRUCTURE

LANDSCAPE DETAILS

REV	DATE	DESCRIPTION

DRAWING	SHEET
LS-02	12 OF 12