

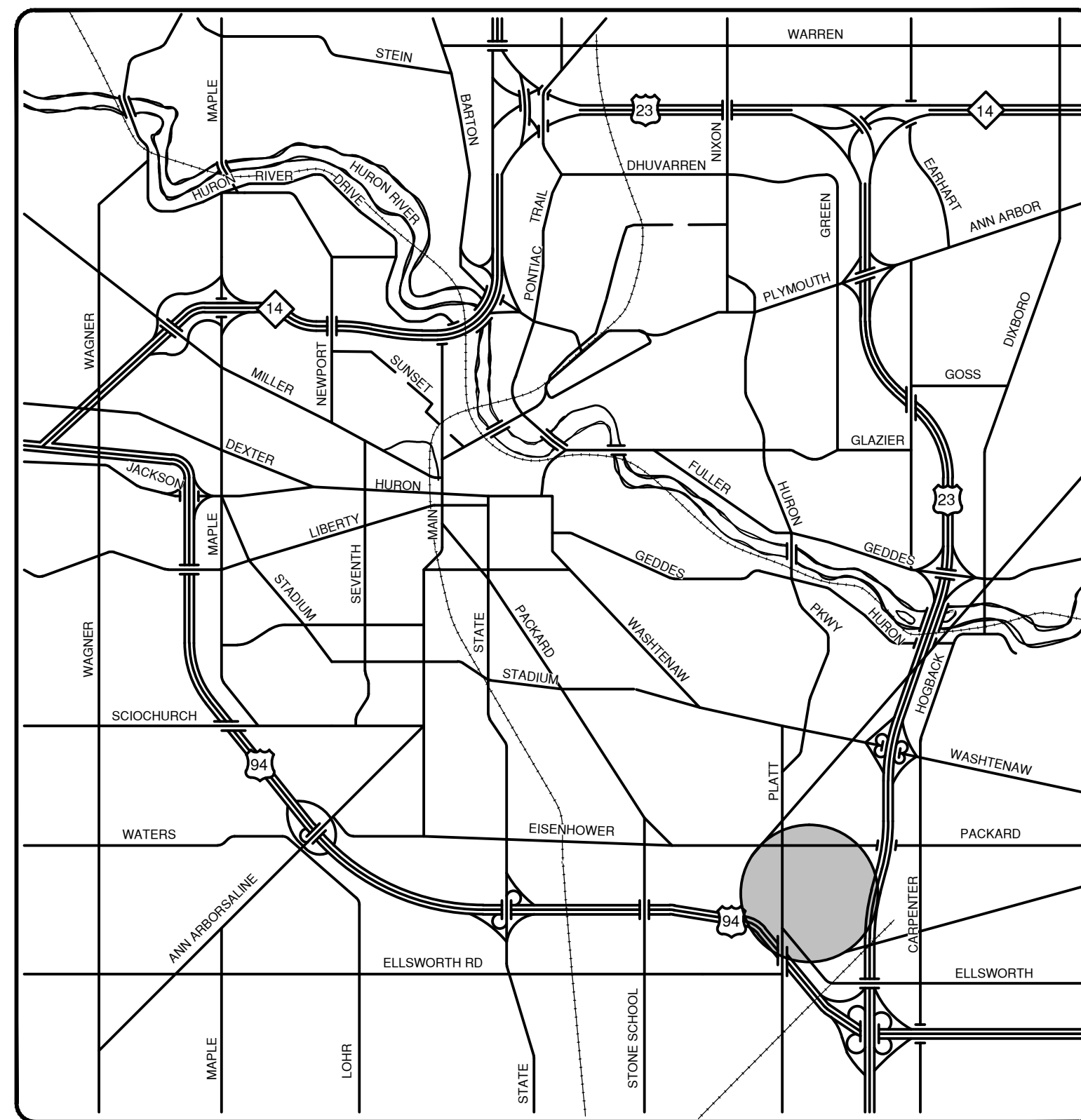
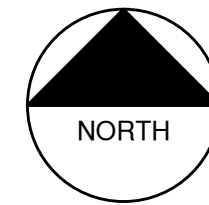


HURON RIVER WATERSHED COUNCIL

IN COOPERATION WITH CITY OF ANN ARBOR

GREEN INFRASTRUCTURE IN SWIFT RUN

Issued for MDEQ Submittal 07/06/16



VICINITY MAP



Sheet Number	Sheet Title
1	Cover
2	Notes and Legend
3	Creek Drive - Typical Cross-Section and Details
4	Fernwood Avenue - Typical Cross-Section and Details
5	LaSalle Drive - Typical Cross-Section and Details
6	Belvidere Street - Typical Cross-Section and Details
7	Redwood Avenue - Typical Cross-Section and Details
8	Bioretention Details
9	Typical Rain Garden Planting Plan
10	Overall Plan - Proposed Rain Garden Key Map
11	Overall Plan - Proposed Rain Garden Layout
12	Creek Drive - Proposed Rain Garden Layout
13	LaSalle Drive - Proposed Rain Garden Layout
14	Fernwood Avenue - Proposed Rain Garden Layout
15	Packard Road - Proposed Rain Garden Layout
16	Redwood Avenue and Belvidere Street - Proposed Rain Garden Layout

NOTES:
 THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE 1994 EDITION OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS AND ITS DETAILS WHICH ARE INCLUDED BY REFERENCE. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT.
 FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, THE CONTRACTOR SHALL CALL 811 OR 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.
 THE UNDERGROUND LOCATIONS SHOWN FOR NATURAL GAS (GAS), TELEPHONE (TEL), ELECTRICAL POWER (PWR), CABLE TV (CTV) AND FIBER OPTIC LINES (FIBER) ARE APPROXIMATE. THE CITY OF ANN ARBOR ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THIS DRAWING. MISS DIG MUST BE CONTACTED PRIOR TO CONSTRUCTION TO LOCATE THESE UTILITIES.

PROJECT MANAGEMENT SERVICE UNIT

JENNIFER NELSON, P.E.
PROJECT ENGINEER

DATE: XX/XX/2016

PREPARED UNDER THE SUPERVISION OF

CHRISTOPHER E. WALL, P.E. - MI LICENSE No. 45668
PROJECT MANAGER

DATE: XX/XX/2016

811 Know what's below. Call before you dig.

01	FOR MDEQ SUBMITTAL	07/06/16	DATE	REV.
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			CHK	CHECKED
			DRN	DRAWN

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ANN ARBOR, MI 48104
734-769-5123
www.hrwco.org

Huron River Watershed Council

GREEN INFRASTRUCTURE IN SWIFT RUN

SCALE: _____
DRAWING No. _____
PROJECT NUMBER: 160177

SHEET No. **1 of 16**

© GREEN INFRASTRUCTURE IN SWIFT RUN; BID NO. ITB ####; FILE NO. ####-###

PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF CONSTRUCTION. Table with columns: PERMIT, ISSUING AUTHORITY. Includes permits for Lane Closure, No Parking, Grading, and Right-of-Way.

CONTACT INFORMATION. Table with columns: PUBLIC UTILITIES, OWNER, CONTACT. Lists contacts for Water Sewer, Storm, Forestry, Signs, Gas, Electric, Cable, Phone, and Fiber Optic.

CIVIL SYMBOL LEGEND. Includes sections for Topography, Existing Utilities, and Miscellaneous. Lists symbols for shrubs, trees, ditches, utilities, fences, and rain gardens.

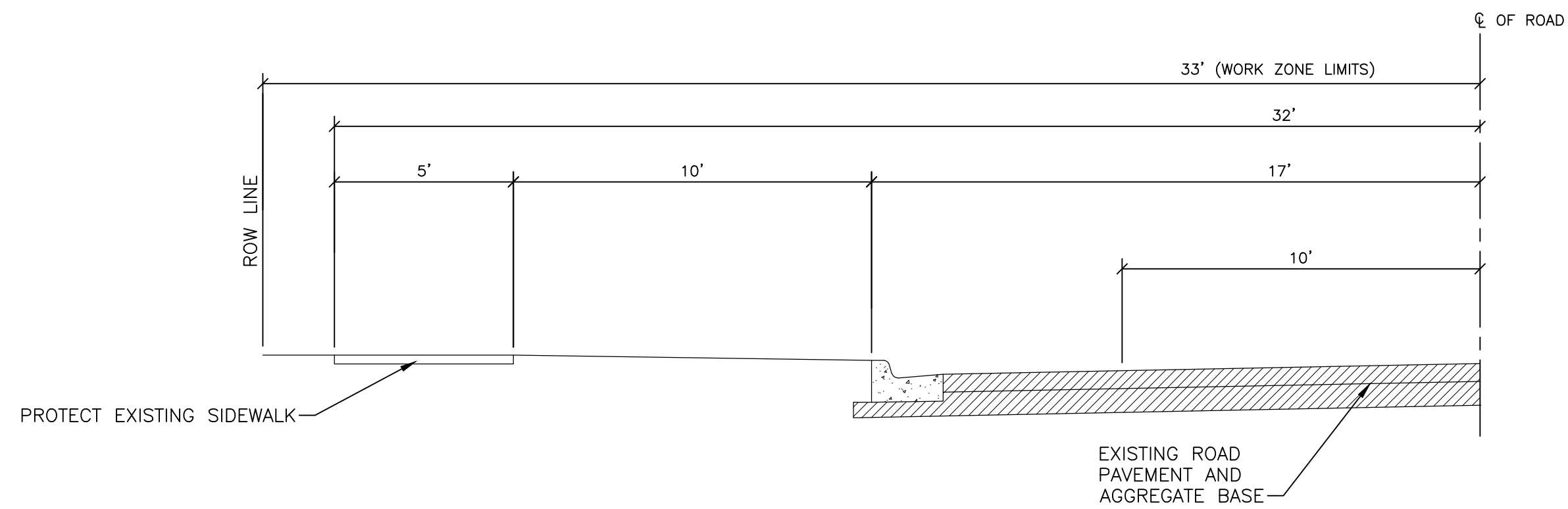
- CONSTRUCTION NOTES. Detailed list of 18 construction requirements covering site preparation, utility protection, erosion control, and safety protocols.

SOIL EROSION CONTROL NOTES and MDOT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES. Includes soil erosion control notes, a table of pipe contents/abbreviations, a table of pipe material/abbreviations, and a table of key details for erosion control measures.

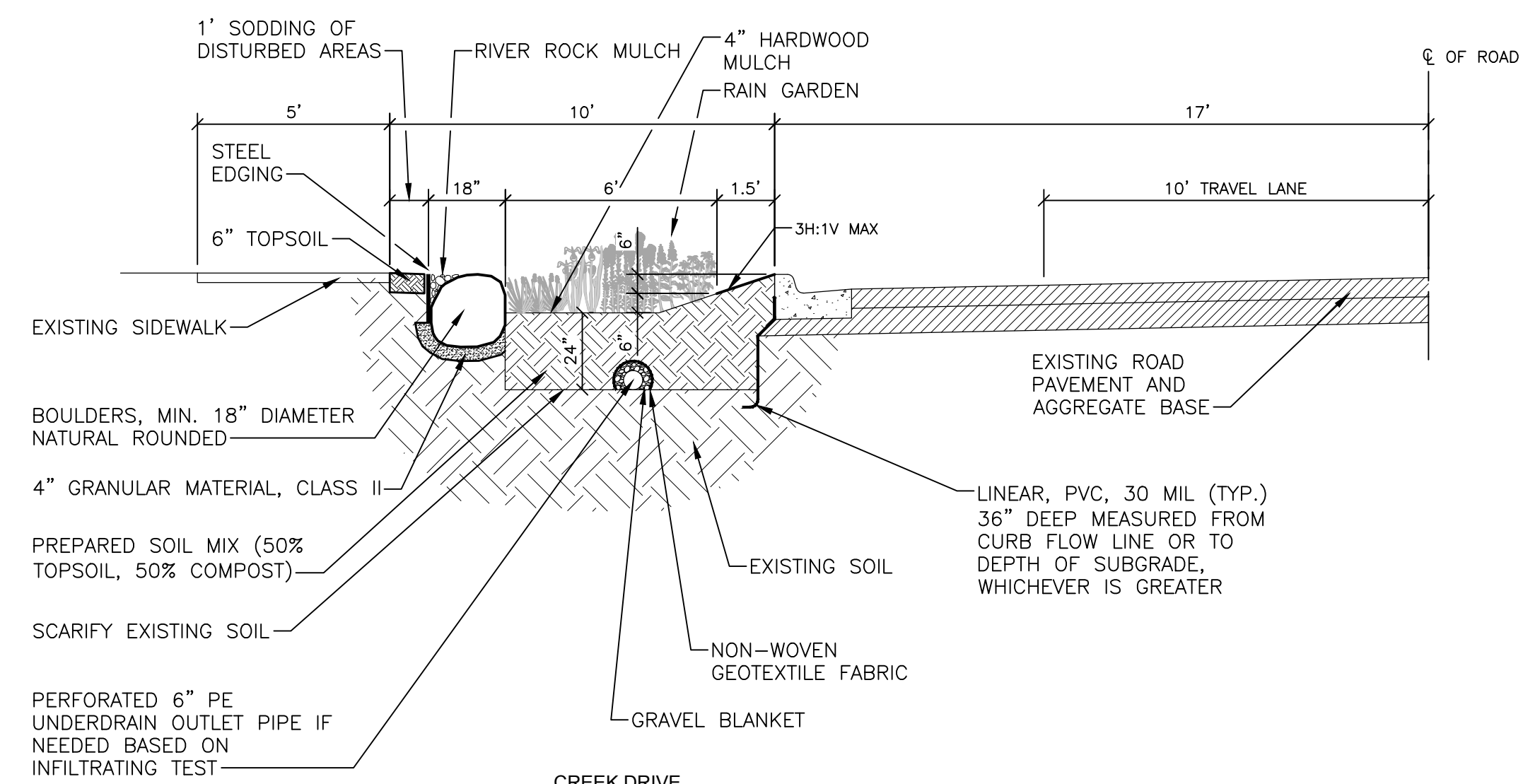
11. REFER DISCREPANCIES TO THE ENGINEER FOR CLARIFICATION. 12. ALL REMOVED MATERIALS ARE THE PROPERTY OF THE CONTRACTOR...

811 logo and contact information for Huron River Council. Includes address: 1100 N MAIN STREET, SUITE 210, ANN ARBOR, MI 48104. Website: www.hrc.org

GREEN INFRASTRUCTURE IN SWIFT RUN. NOTES AND LEGEND. PROJECT NUMBER: 160177. SCALE: SHEET NO. 2 of 16.



**CREEK DRIVE
EXISTING CROSS SECTION**
NO SCALE



**CREEK DRIVE
PROPOSED CROSS SECTION**
NO SCALE

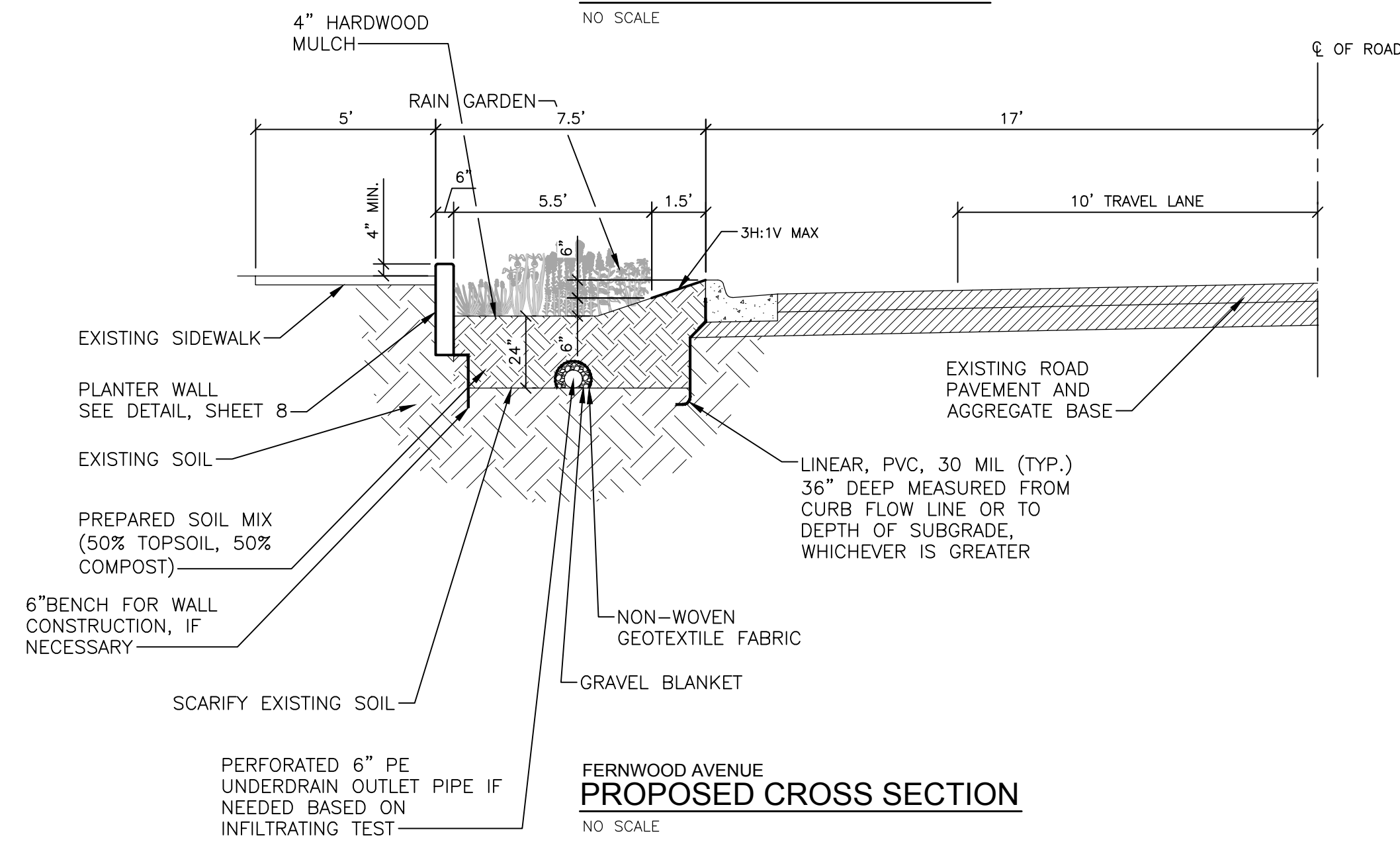
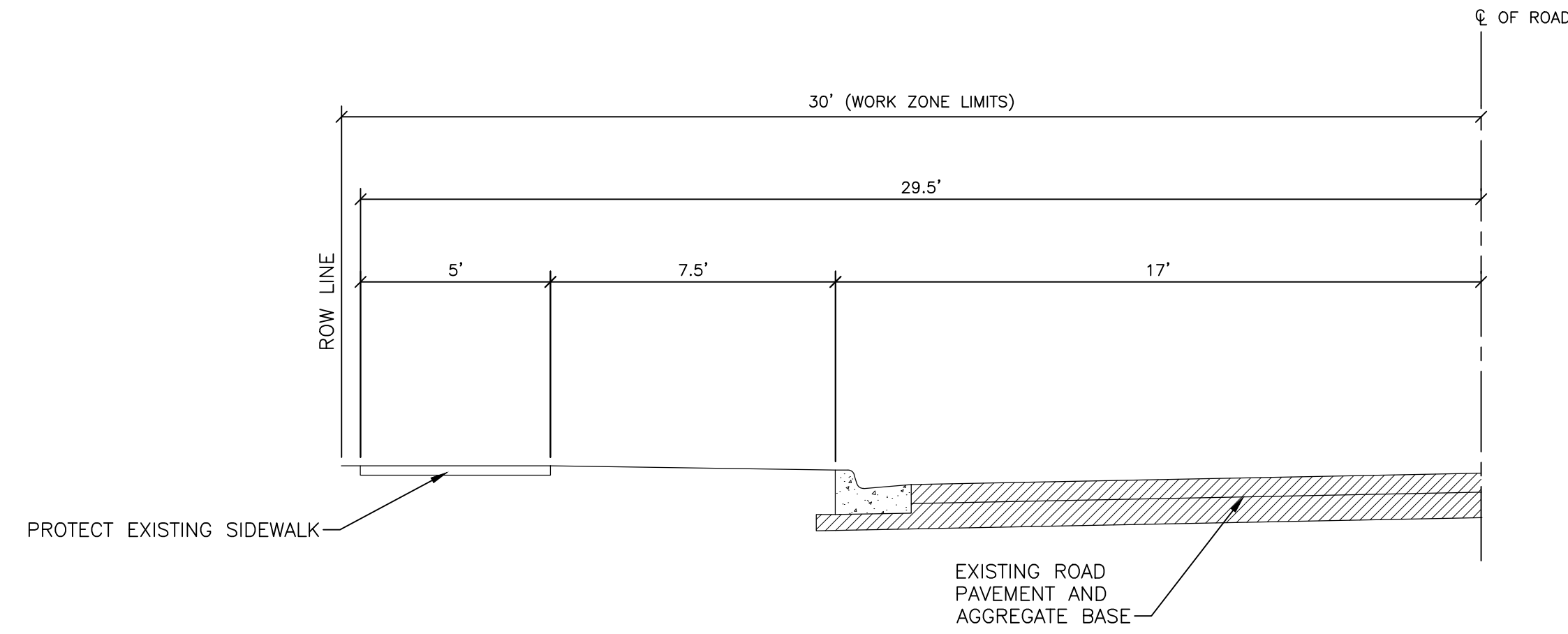


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GREEN INFRASTRUCTURE IN SWIFT RUN
 CREEK DRIVE
 TYPICAL CROSS-SECTION AND DETAILS

SCALE: NO SCALE
 DRAWING No. **PROJECT NUMBER: 160177**



SCALE: NO SCALE

DRAWING No.

PROJECT NUMBER: 160177

GREEN INFRASTRUCTURE IN SWIFT RUN
FERNWOOD AVENUE
TYPICAL CROSS-SECTION AND DETAILS



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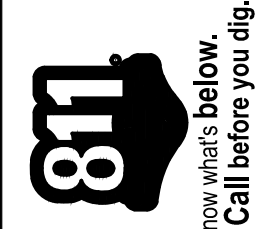
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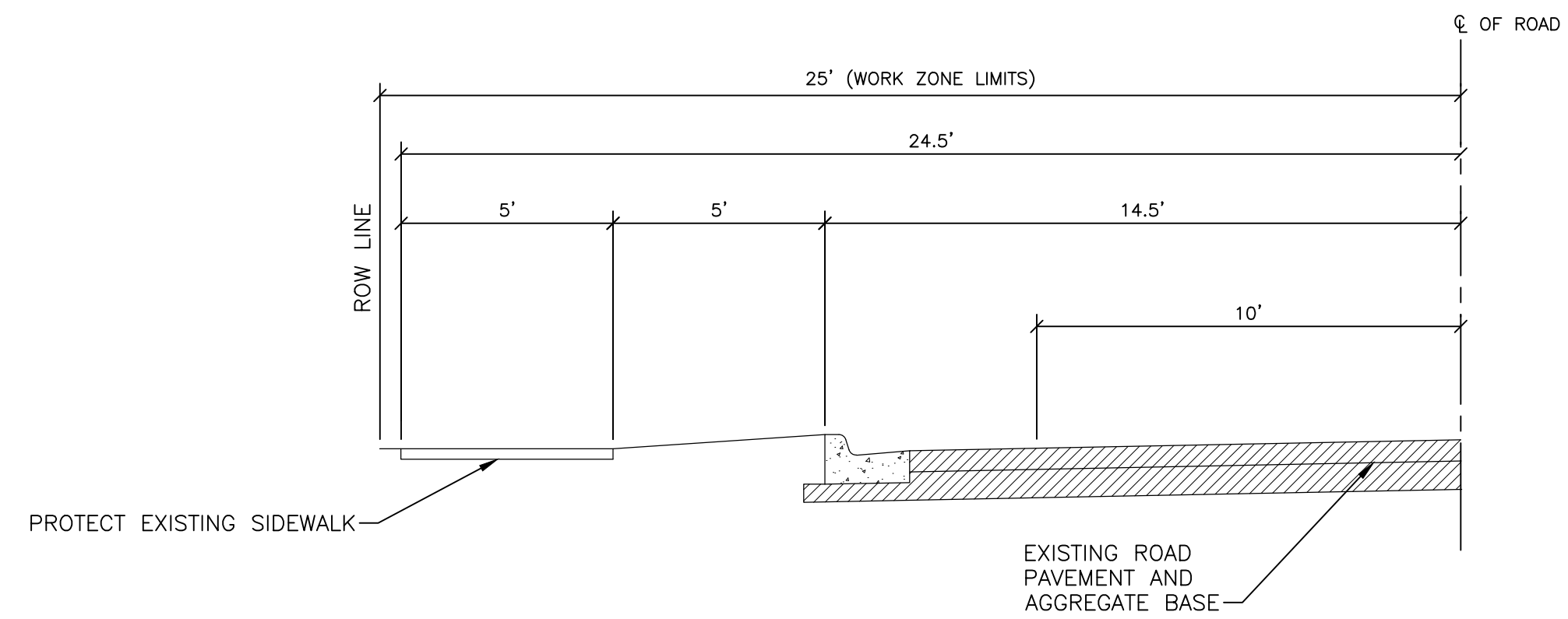
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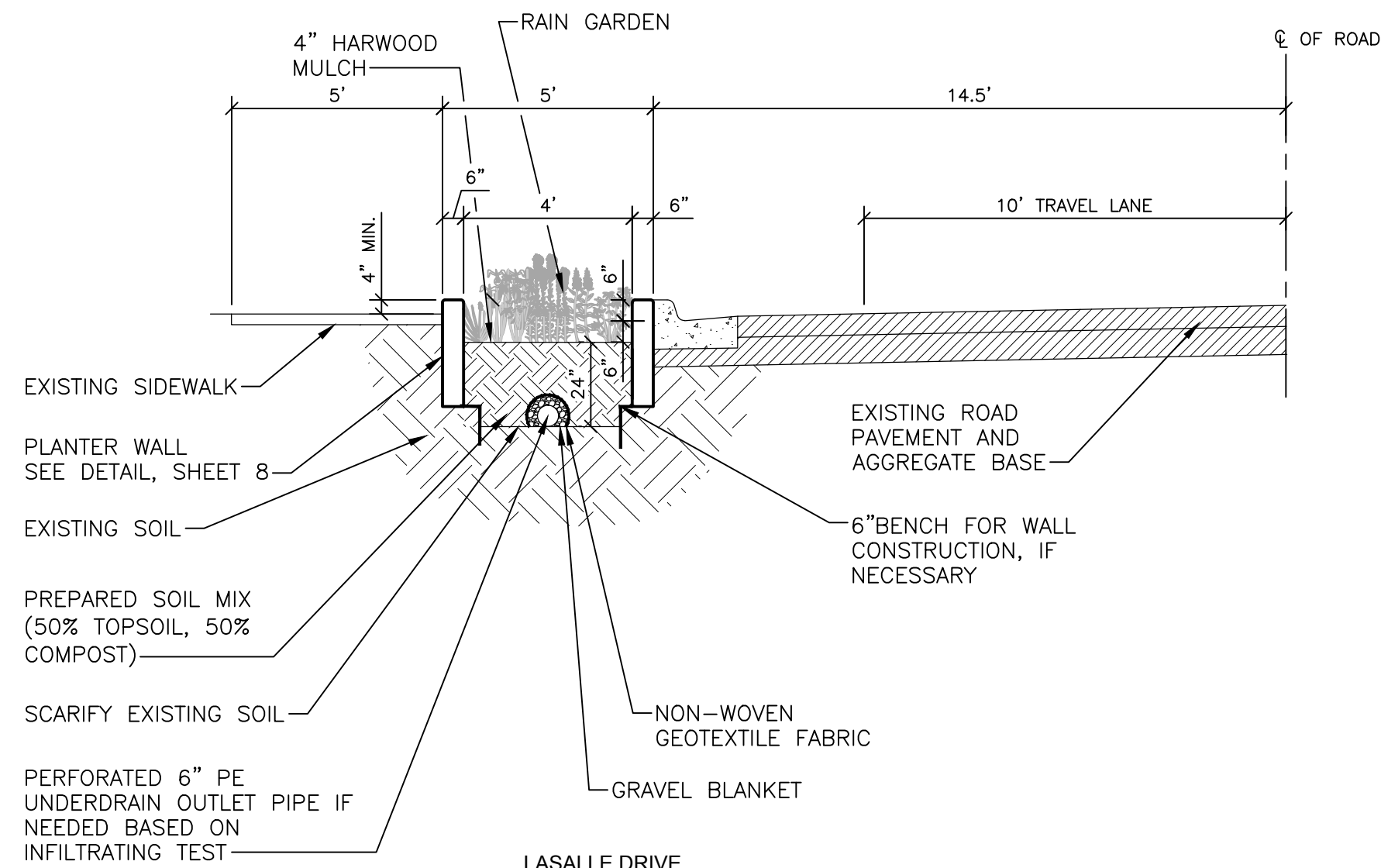
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DESCRIPTION





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EXISTING CROSS SECTION
NO SCALE



LASALLE DRIVE
PROPOSED CROSS SECTION
NO SCALE

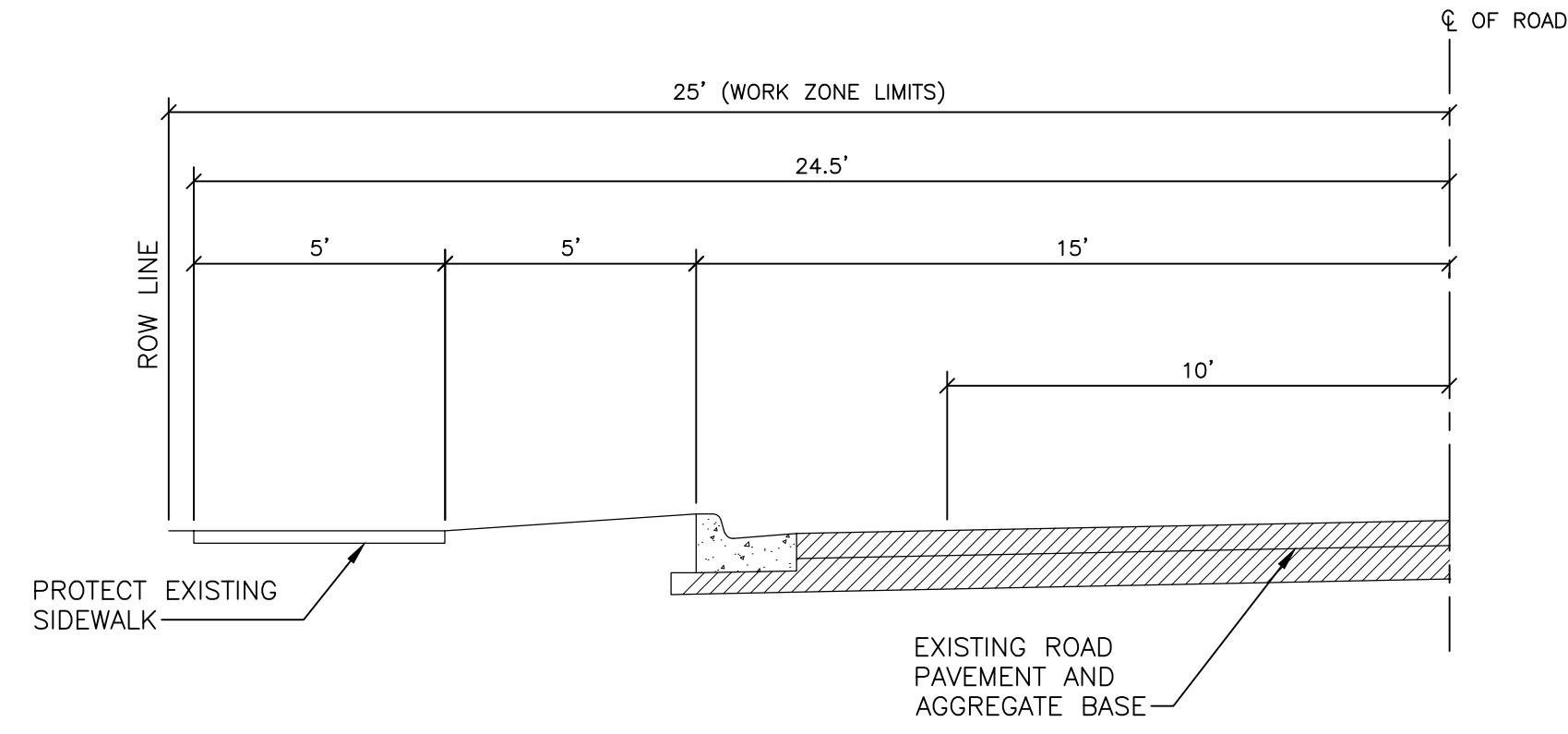


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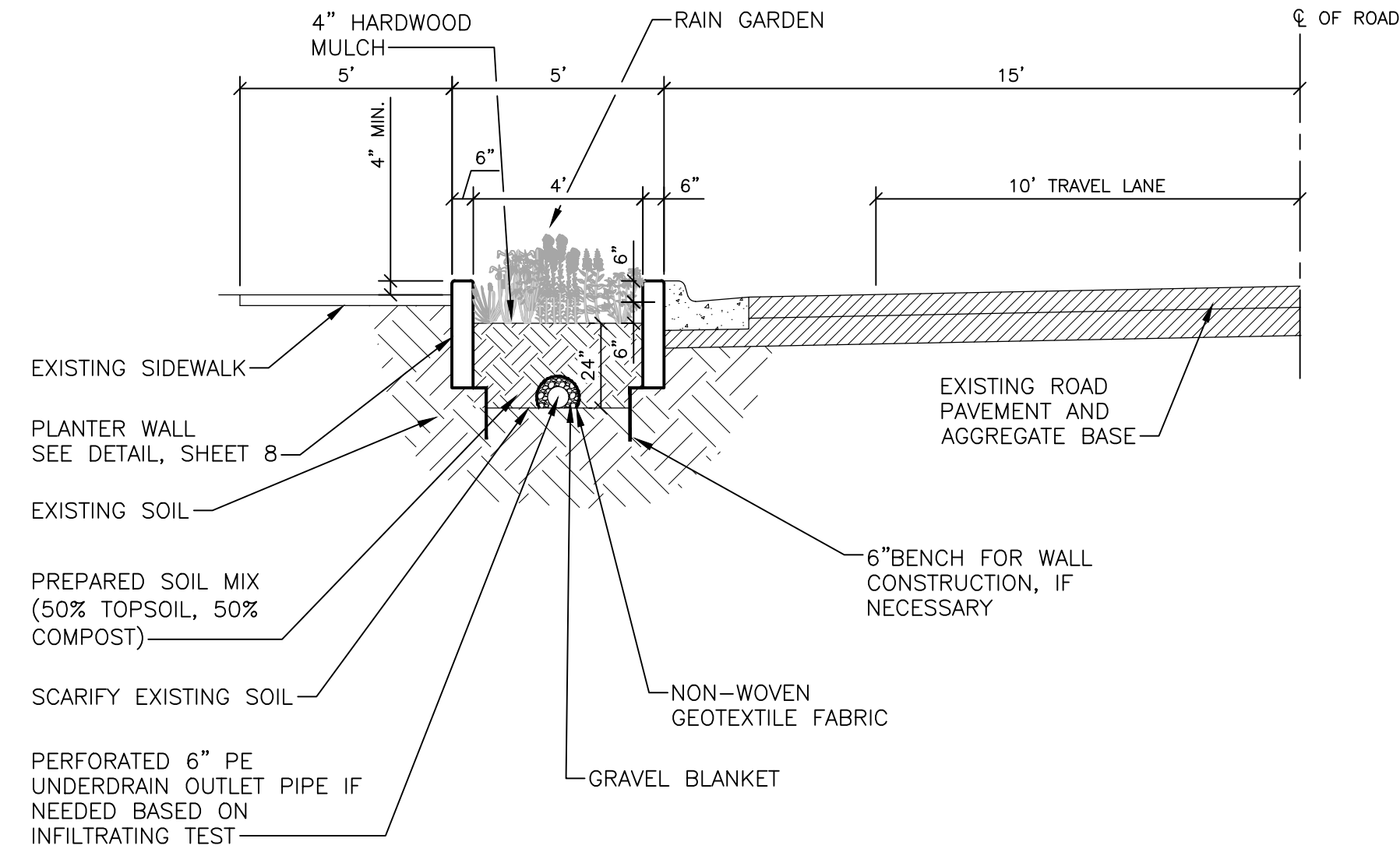
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GREEN INFRASTRUCTURE IN SWIFT RUN
LASALLE DRIVE
TYPICAL CROSS-SECTION AND DETAILS

SCALE: NO SCALE
DRAWING No.
PROJECT NUMBER: 160177



BELVIDERE STREET
EXISTING CROSS SECTION
 NO SCALE



BELVIDERE STREET
PROPOSED CROSS SECTION
 NO SCALE

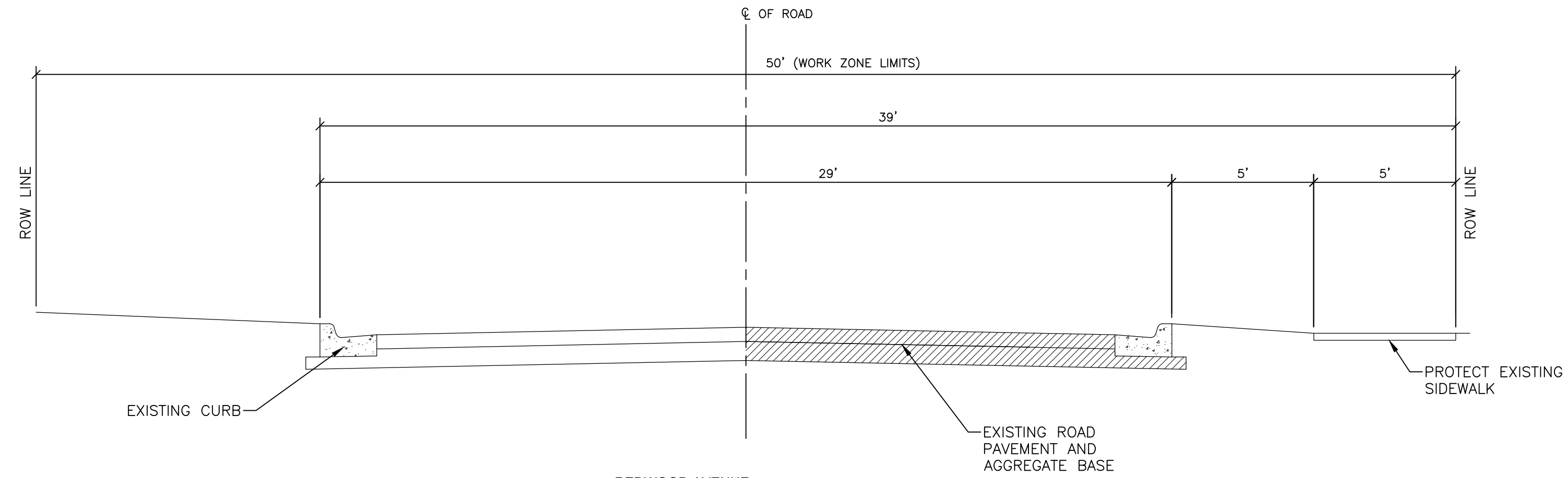


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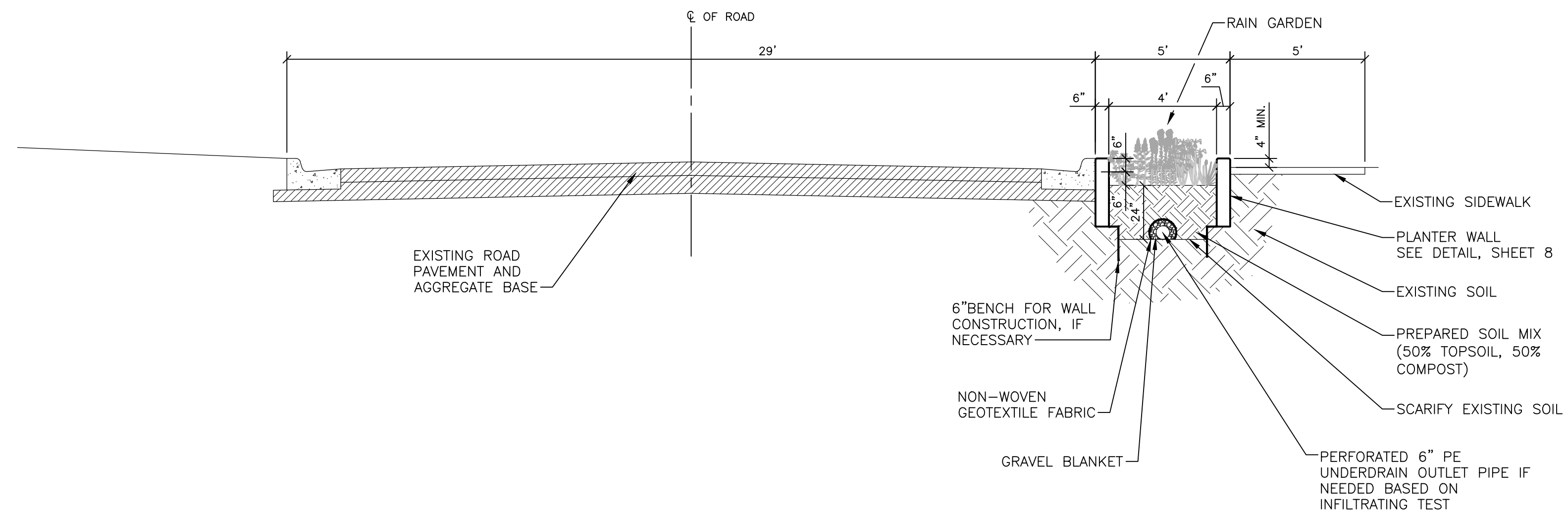
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GREEN INFRASTRUCTURE IN SWIFT RUN
 BELVIDERE STREET
 TYPICAL CROSS-SECTION AND DETAILS

SCALE: NO SCALE
 DRAWING No.
PROJECT NUMBER: 160177



REDWOOD AVENUE
EXISTING CROSS SECTION
NO SCALE



REDWOOD AVENUE
PROPOSED CROSS SECTION
NO SCALE

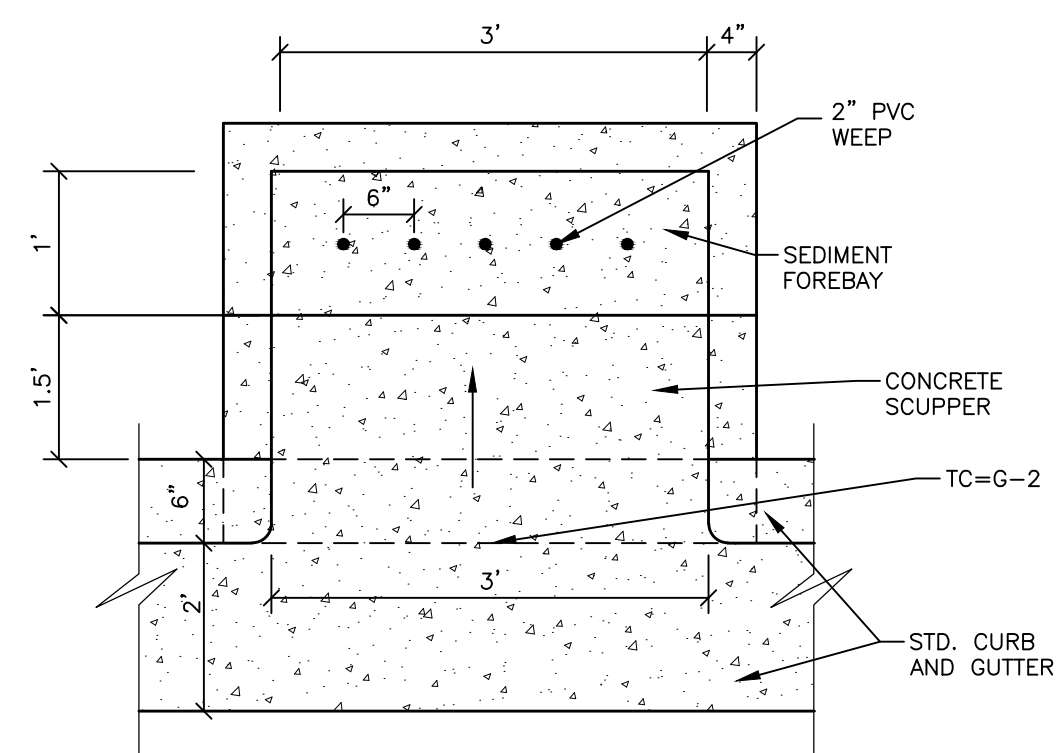


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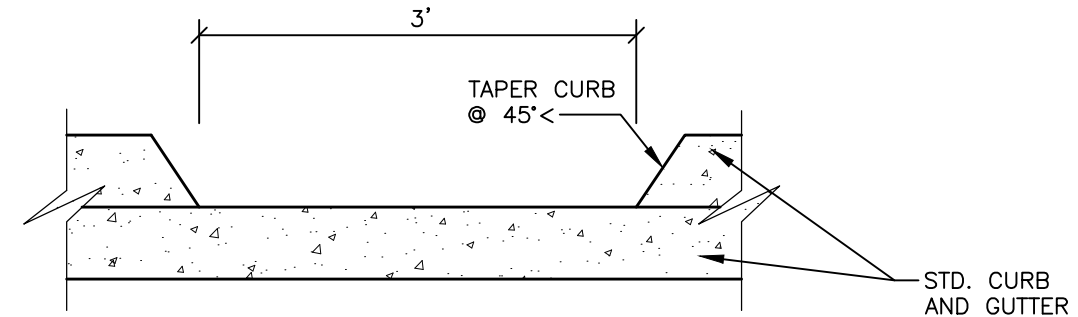
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GREEN INFRASTRUCTURE IN SWIFT RUN
REDWOOD AVENUE
TYPICAL CROSS-SECTION AND DETAILS

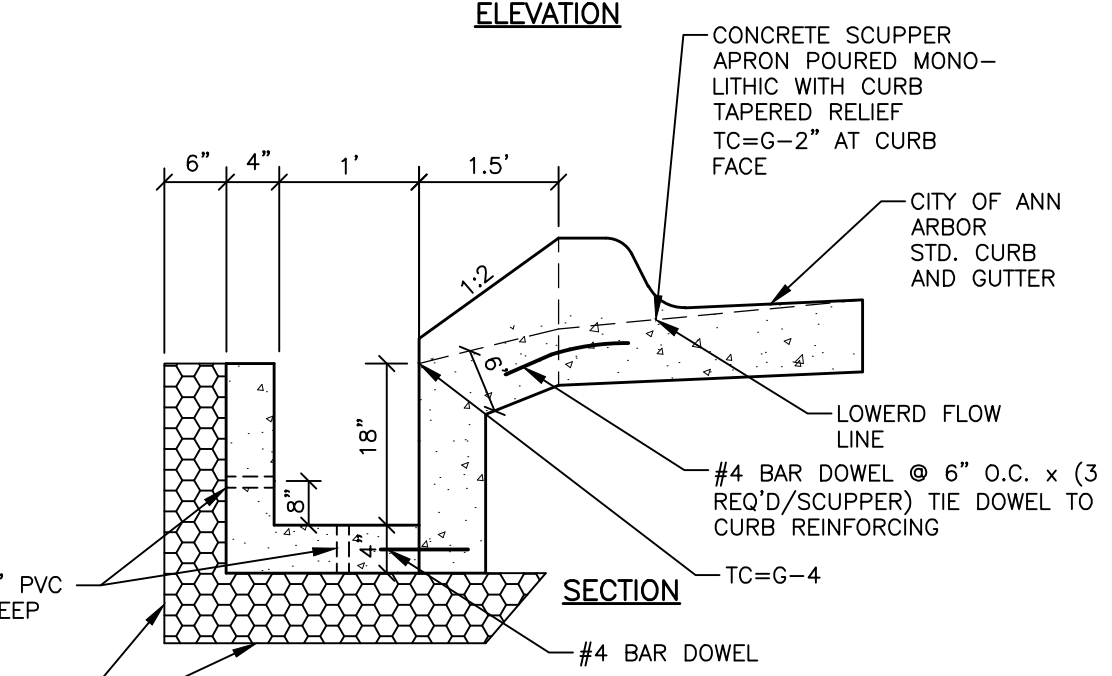
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PROJECT NUMBER: 160177



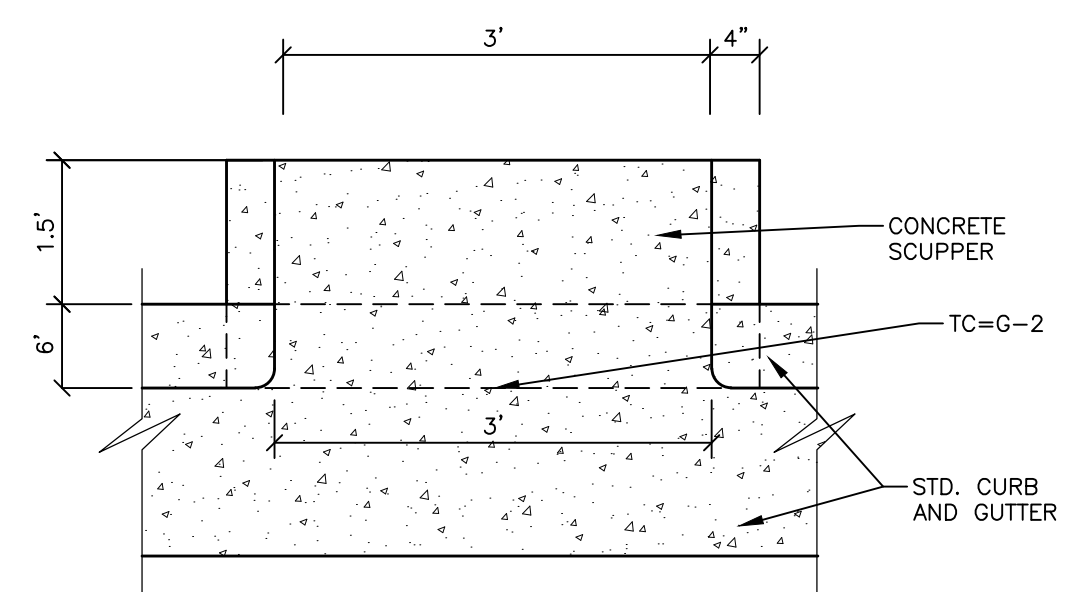
PLAN



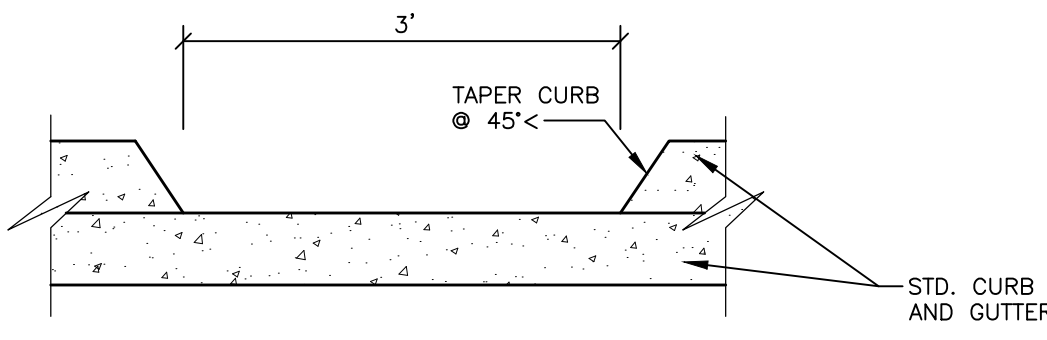
ELEVATION



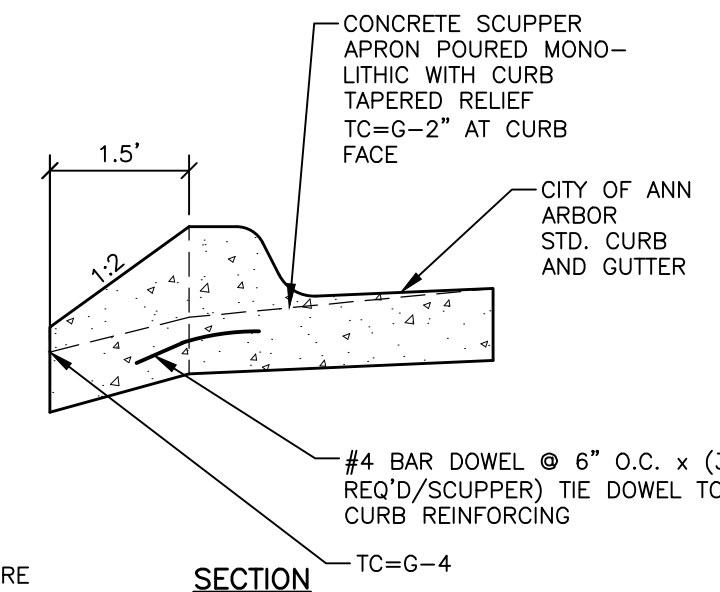
CURB SCUPPER AND FOREBAY DETAIL
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PLAN



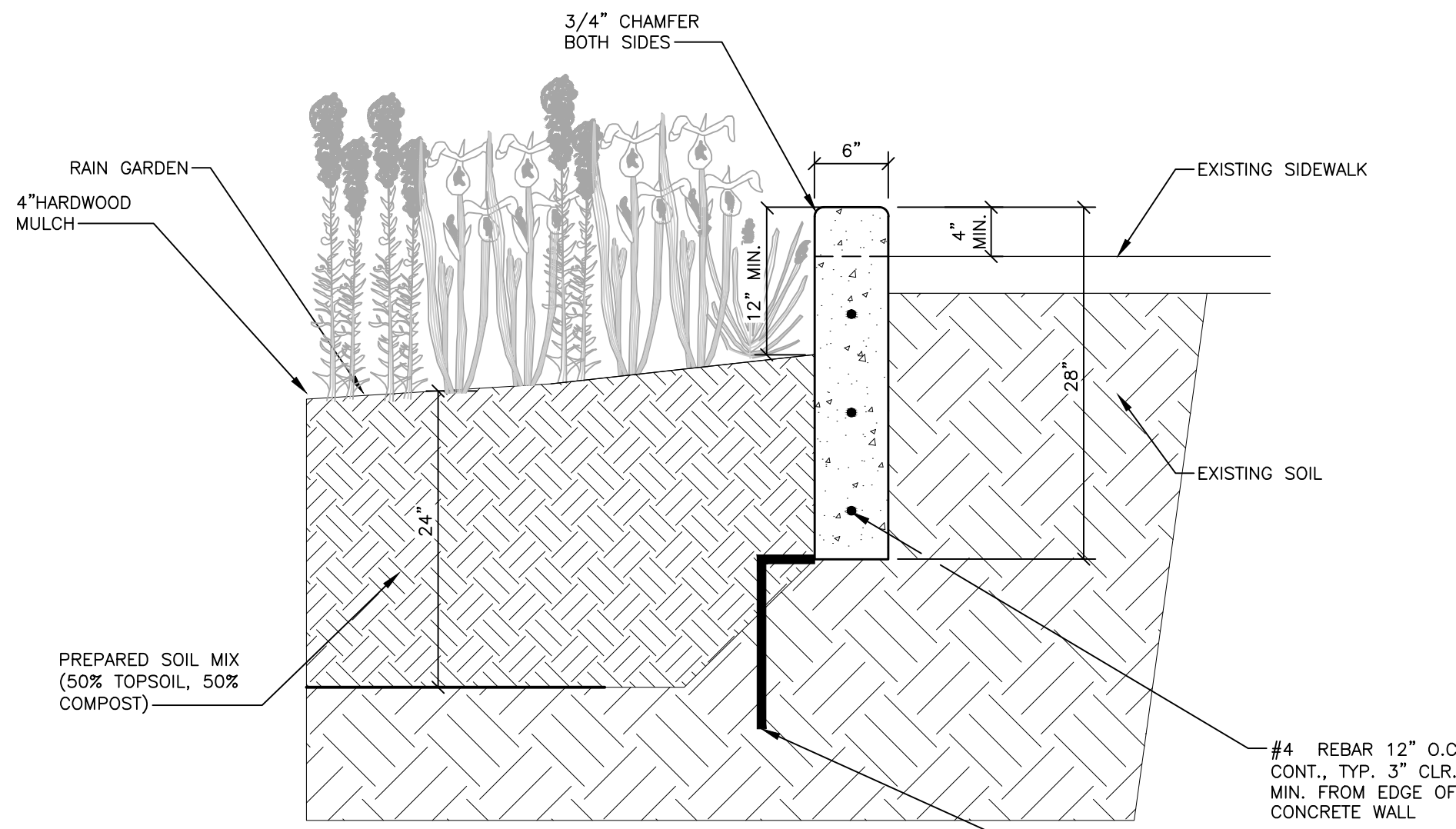
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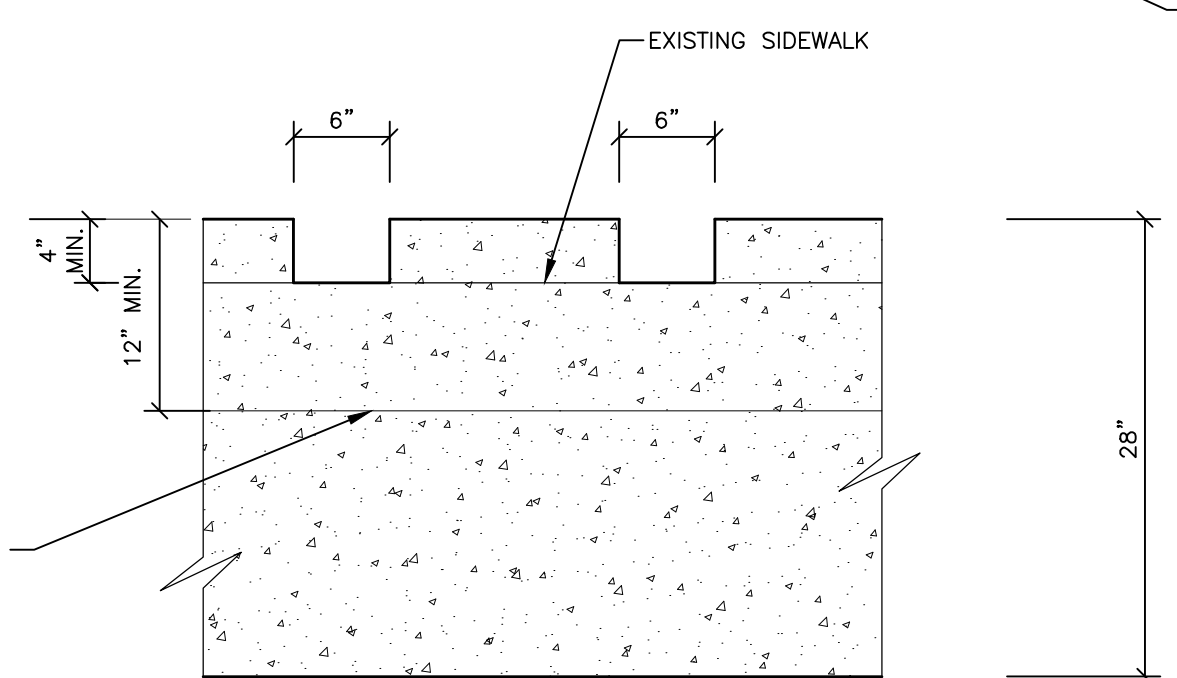
SECTION

1. CONCRETE SCUPPER PAD NECESSARY WHERE WATER ENTERS AND/OR EXITS FACILITY

CURB OVERFLOW DETAIL
NO SCALE



SECTION



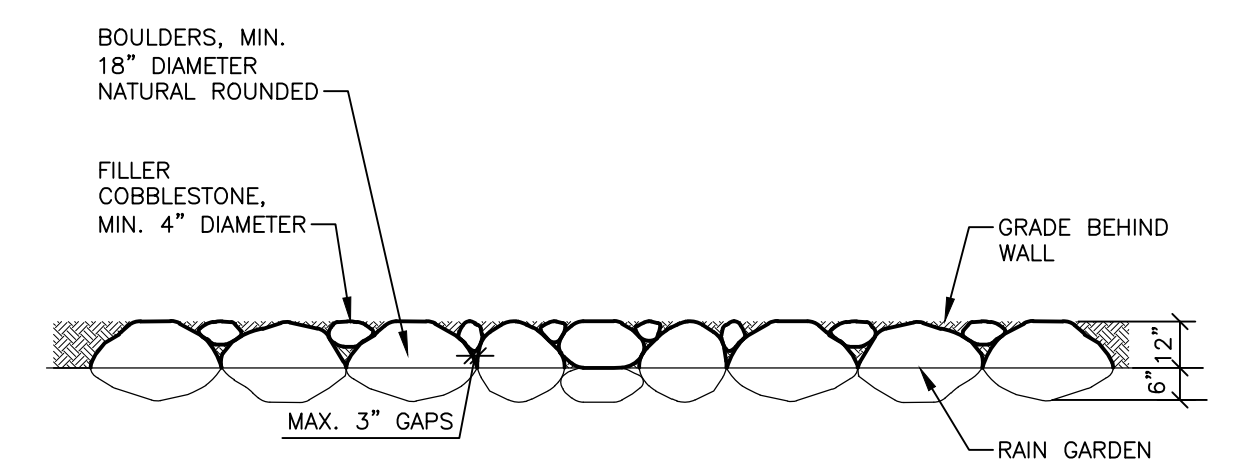
ELEVATION

PLANTER WALL DETAIL
NO SCALE

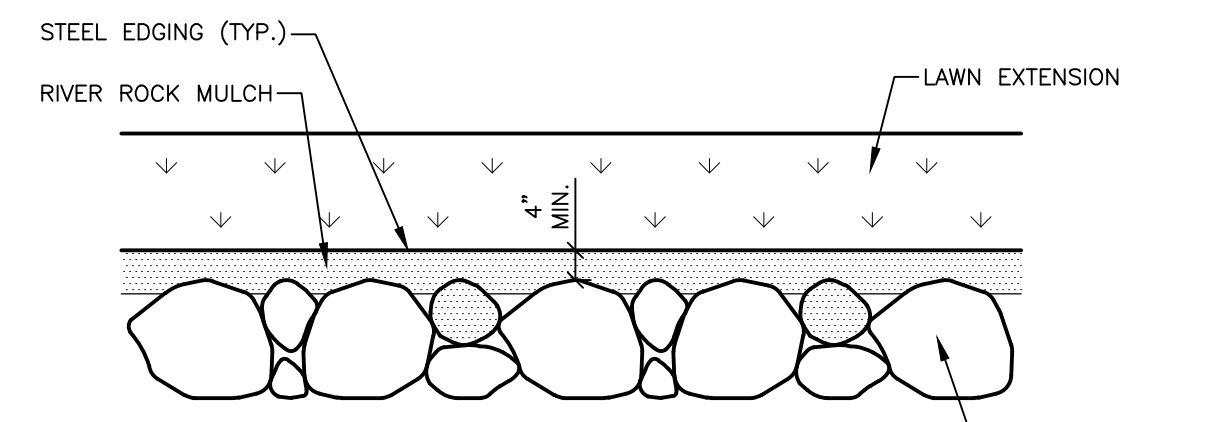
1. FINISH ALL EXPOSED CONCRETE SURFACES.

RAIN GARDEN PLANT MATERIALS						
Key	Botanical Name	Common Name	Quantity	Size	Condition	Remarks/Acceptable Substitutions
AC	Anemone Canadensis	Canada Wildflower	#1		Cont.	
EP	Echinacea Purpurea	Purple Coneflower	#2		Cont.	Other pink cultivars ok; ultimate height must be below 3'
IV	Iris Virginica	Blue Flag Iris	#2		Cont.	No substitution allowed
PV	Plaicum Virgatum 'Shenandoah'	Shenadoah Switchgrass	#2		Cont.	Panicum Virgatum 'Rotstrahlbusch'
HH	Hemerocallis 'Hyperion'	Hyperion Daylily	#2		Cont.	Hemerocallis 'Happy Returns'
ER	Euphorbia Rigida	Silver Spurge	#2		Cont.	
SA	Sedum 'Autumn Joy'	Autumn Joy Sedum	#2		Cont.	
NF	Nepeta x Faassenii 'Blue Wonder'	Blue Wonder Catmint	#2		Cont.	Caryopteris 'First Choice'
BA	Baptisia Australis	Blue Wile Indigo	#2		Cont.	
HM	Hibiscus Moscheutos 'Fantasia'	Fantasia Rosemallow	#3		Cont.	Hibiscus Moscheutos 'Robert Fleming'
AC	Anemone Canadensis	Canada Wildflower	#1		Cont.	
EP	Echinacea Purpurea	Purple Coneflower	#2		Cont.	Other pink cultivars ok; ultimate height must be below 3'
IV	Iris Virginica	Blue Flag Iris	#2		Cont.	No substitution allowed
PV	Plaicum Virgatum 'Shenandoah'	Shenadoah Switchgrass	#2		Cont.	Panicum Virgatum 'Rotstrahlbusch'
SH	Sporobolus heterolepis	Prairie Dropseed	#2		Cont.	
AT	Asclepias Tuberosa	Butterfly Weed	#2		Cont.	
HM	Hibiscus Moscheutos 'Fantasia'	Fantasia Rosemallow	#3		Cont.	Hibiscus Moscheutos 'Robert Fleming'
PF	Potentilla Fruticosa	Shrubby Cinquefoil	#3		Cont.	
CV	Carex Vulpinoidea	Fox Sedge	Plug	Plug		Fescue sp.
QB	Quercus Bicolor	Swamp White Oak	1.5-2" cal.	B&B		Quercus Macrocarpa, 6' branch height
AR	Nyssa Sylvatica	Black Gum	1.5-2" cal.	B&B		Acer Rubrum, 6' branch height

1. SEE SHEET 9 FOR TYPICAL RAIN GARDEN PLANTING PLAN



ELEVATION VIEW



PLAN VIEW

BOULDER WALL DETAIL
NO SCALE

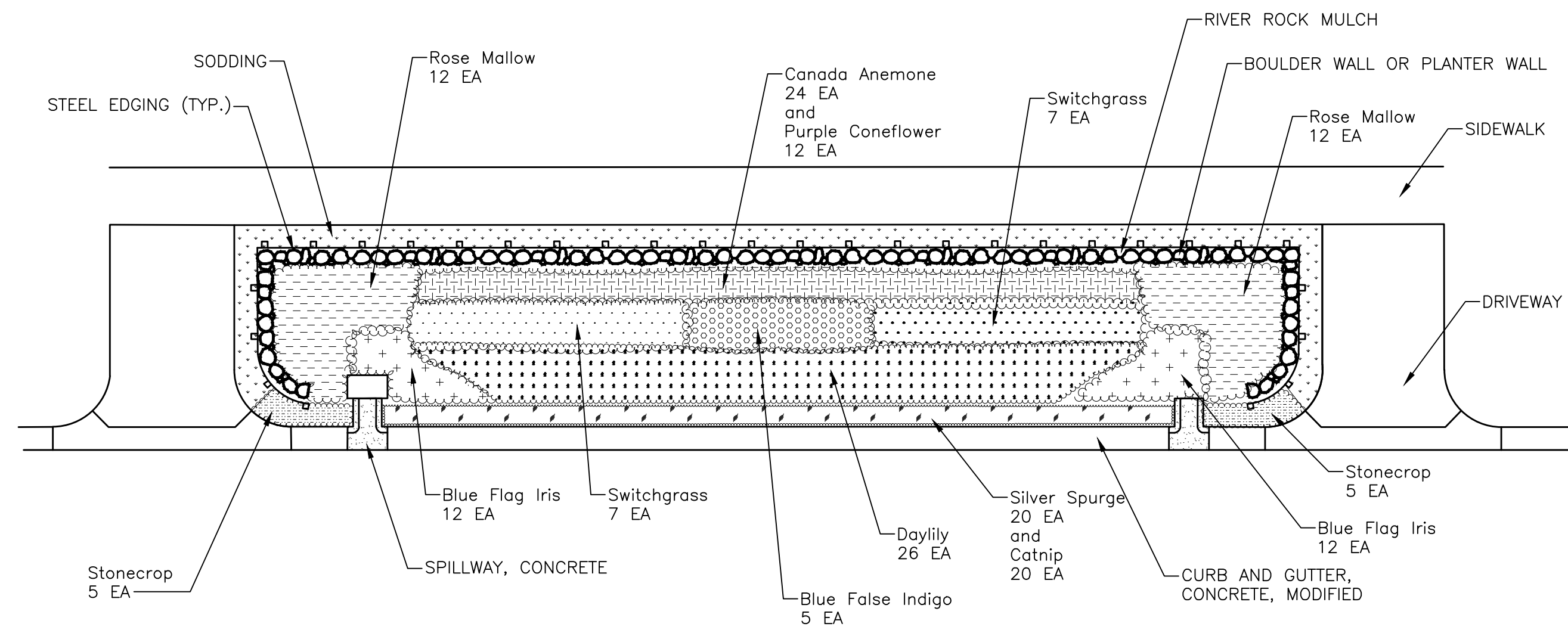


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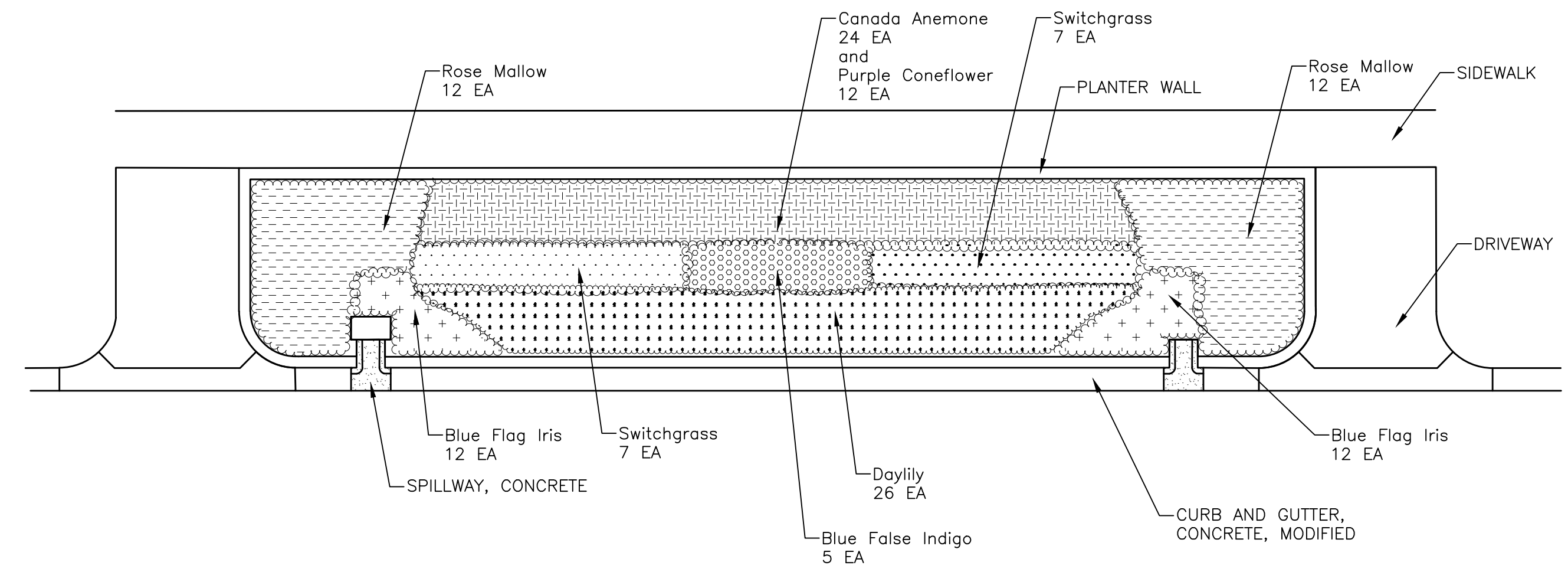
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GREEN INFRASTRUCTURE IN SWIFT RUN
BIORETENTION
DETAILS

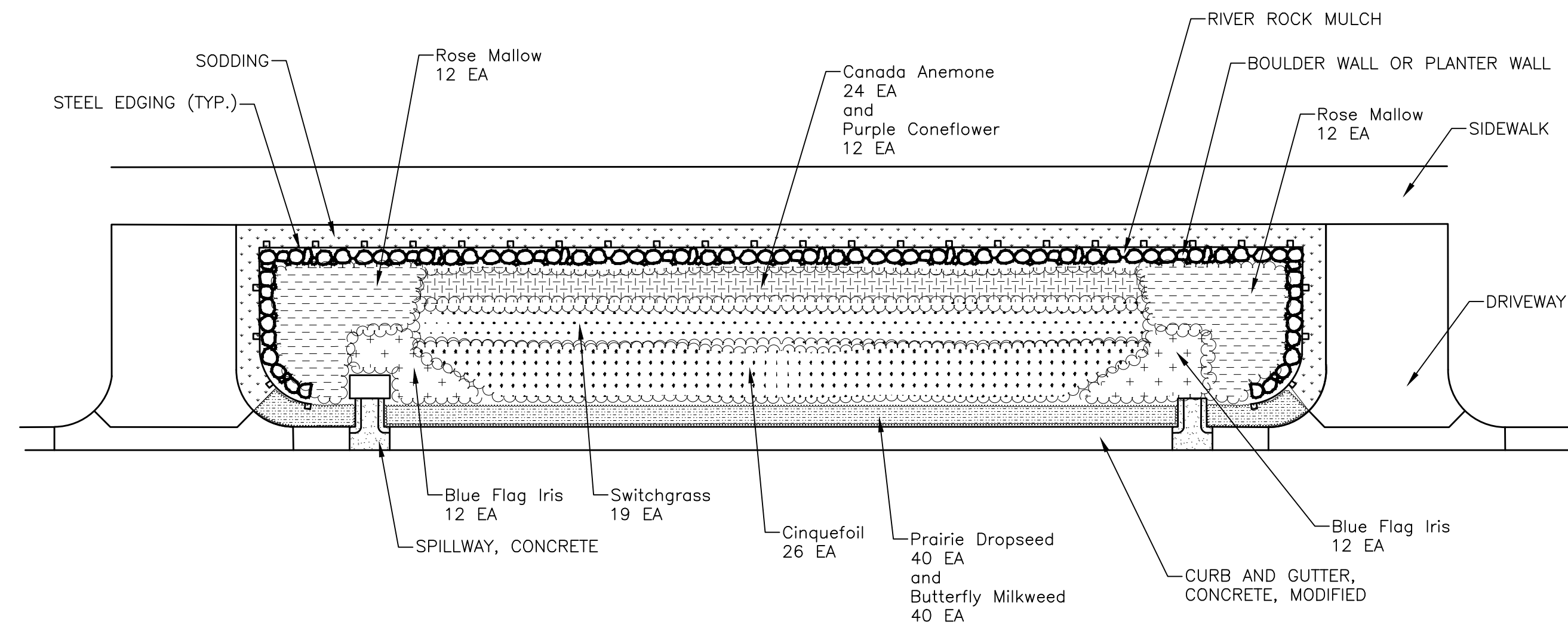
SCALE: NO SCALE
DRAWING No.
PROJECT NUMBER: 160177



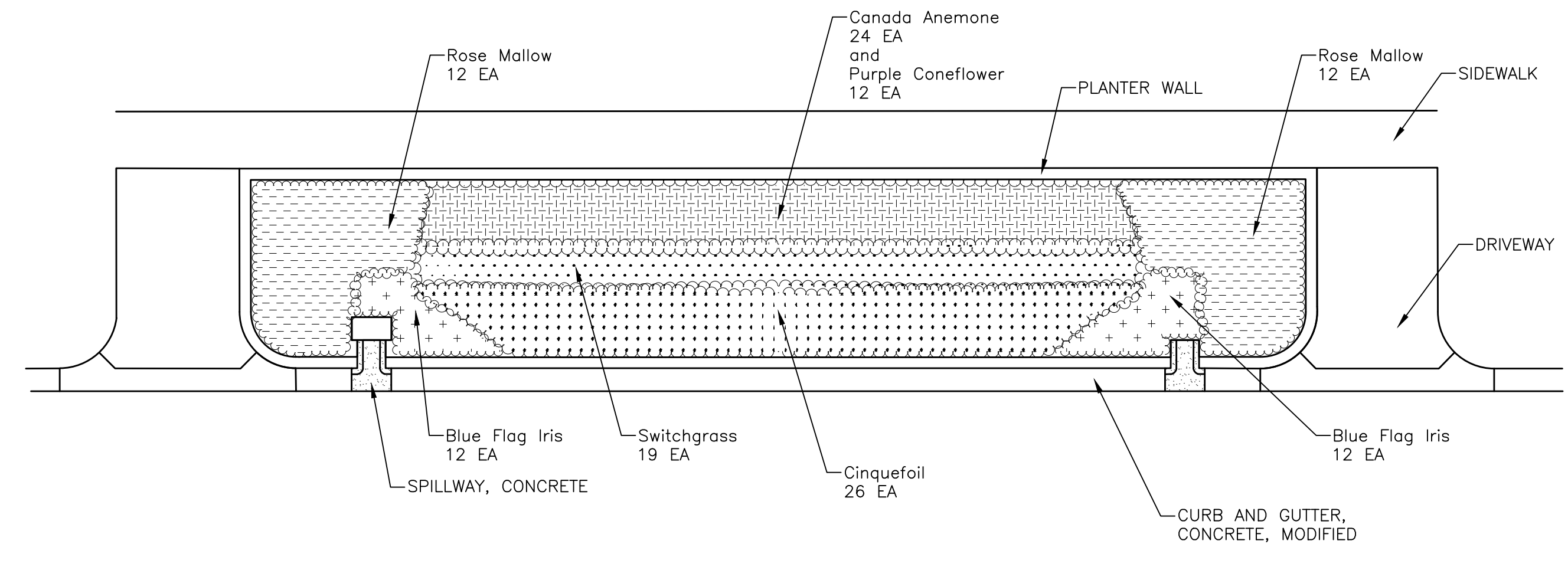
CREEK DRIVE & FERNWOOD AVENUE
TYPICAL RAIN GARDEN PLANTING PLAN "A"
 NO SCALE



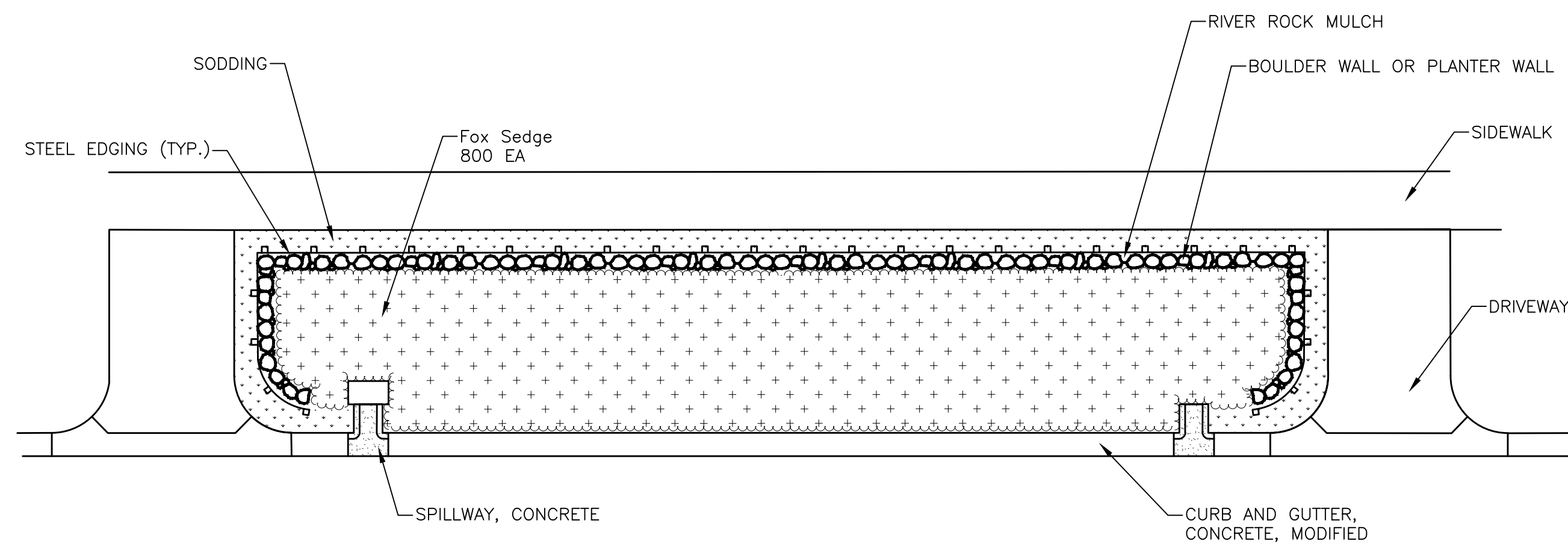
BELVIDERE STREET & REDWOOD AVENUE
TYPICAL RAIN GARDEN PLANTING PLAN "A"
 NO SCALE



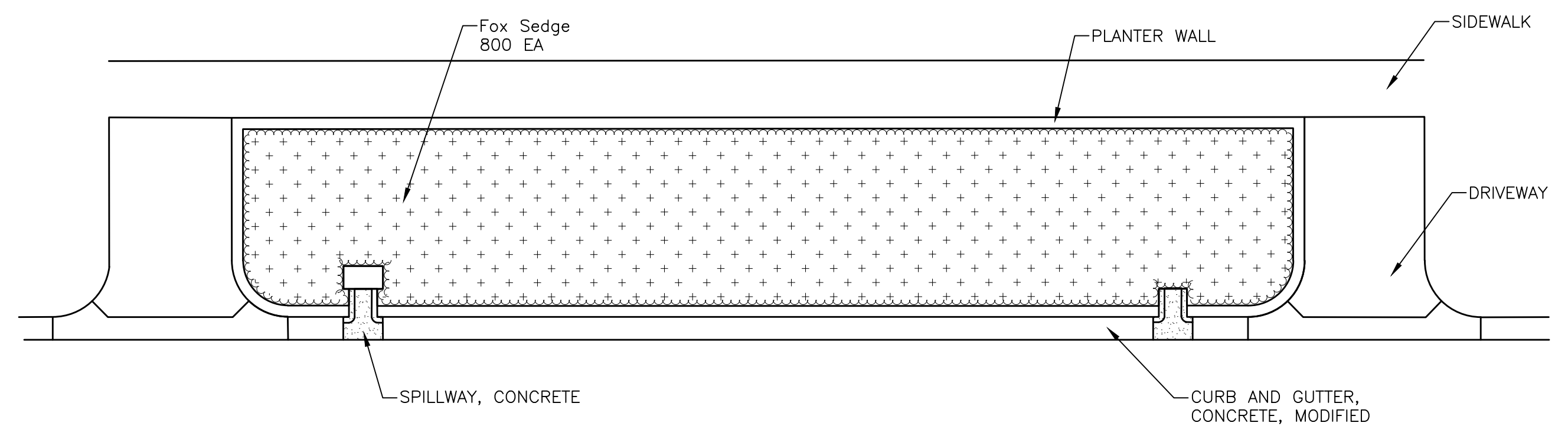
CREEK DRIVE & FERNWOOD AVENUE
TYPICAL RAIN GARDEN PLANTING PLAN "B"
 NO SCALE



BELVIDERE STREET & REDWOOD AVENUE
TYPICAL RAIN GARDEN PLANTING PLAN "B"
 NO SCALE



CREEK DRIVE & FERNWOOD AVENUE
TYPICAL RAIN GARDEN PLANTING PLAN "C"
 NO SCALE



BELVIDERE STREET & REDWOOD AVENUE
TYPICAL RAIN GARDEN PLANTING PLAN "C"
 NO SCALE

NOTE:
 1. SEE SHEET 8 FOR RAIN GARDEN PLANT MATERIALS.

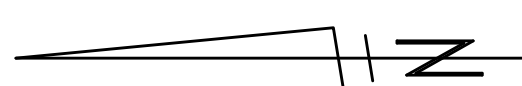




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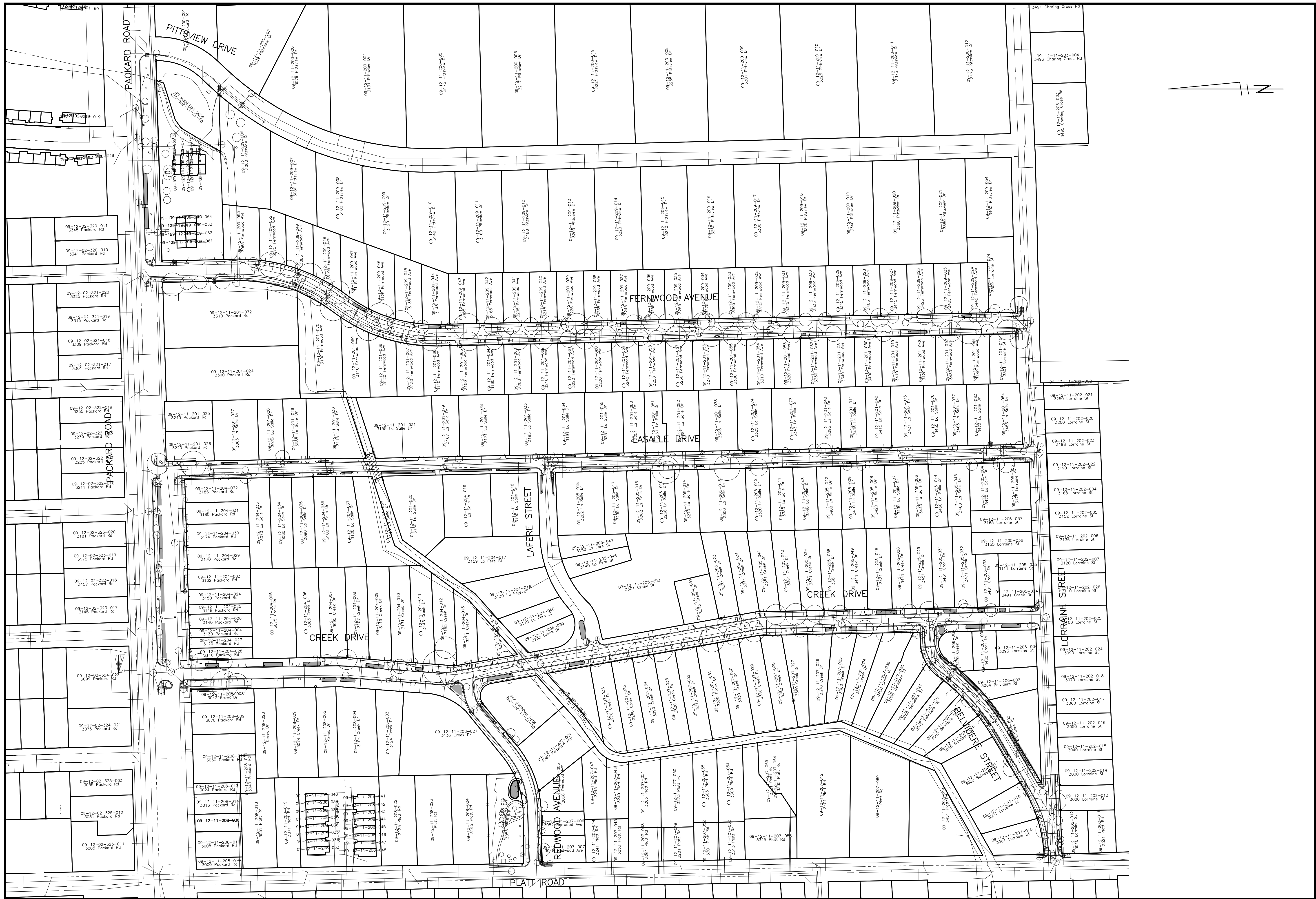
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GREEN INFRASTRUCTURE IN SWIFT RUN
 TYPICAL RAIN GARDEN PLANTING PLAN

SCALE: NTS
 DRAWING No. PROJECT NUMBER: 160177



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GREEN INFRASTRUCTURE IN SWIFT RUN OVERALL PLAN PROPOSED RAIN GARDEN KEY MAP					
SCALE PLAN: NTS	PROJECT NUMBER: 160177				
DRAWING No.	SHEET No.				
	10 of 16				



GREEN INFRASTRUCTURE IN SWIFT RUN
OVERALL PLAN
PROPOSED RAIN GARDEN LAYOUT

SCALE PLAN: NTS
DRAWING NO.
PROJECT NUMBER: 160177

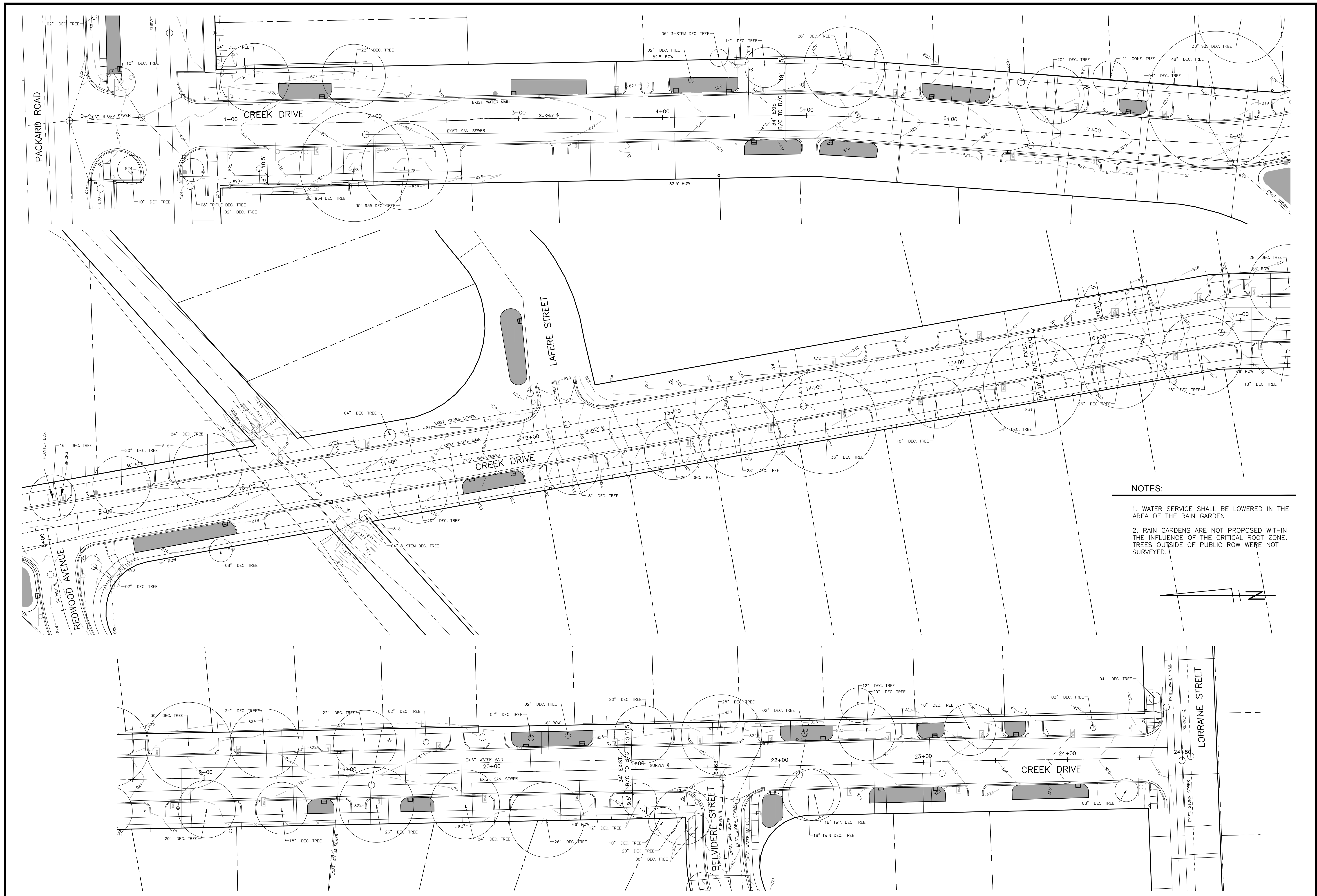
SHEET NO. 11 of 16

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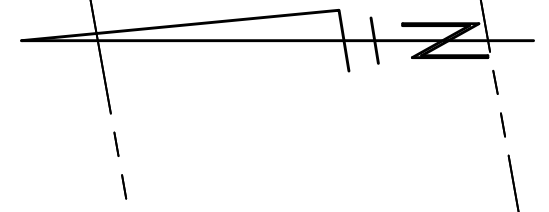
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		DRWN
		CHEKED

Know what's below.
Call before you dig.



- NOTES:**
1. WATER SERVICE SHALL BE LOWERED IN THE AREA OF THE RAIN GARDEN.
 2. RAIN GARDENS ARE NOT PROPOSED WITHIN THE INFLUENCE OF THE CRITICAL ROOT ZONE. TREES OUTSIDE OF PUBLIC ROW WERE NOT SURVEYED.

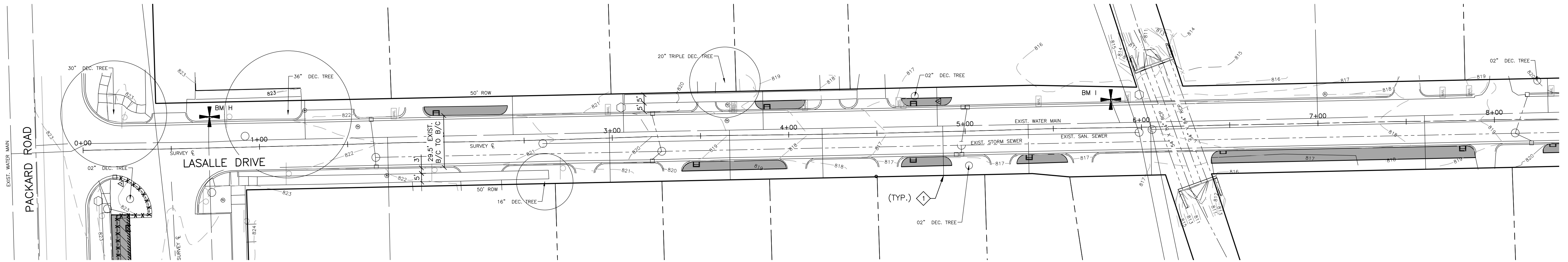


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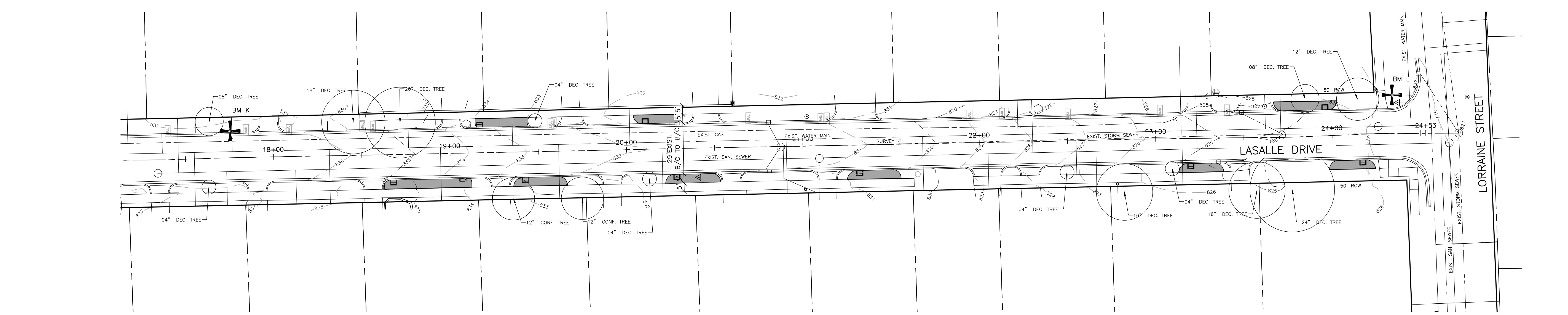
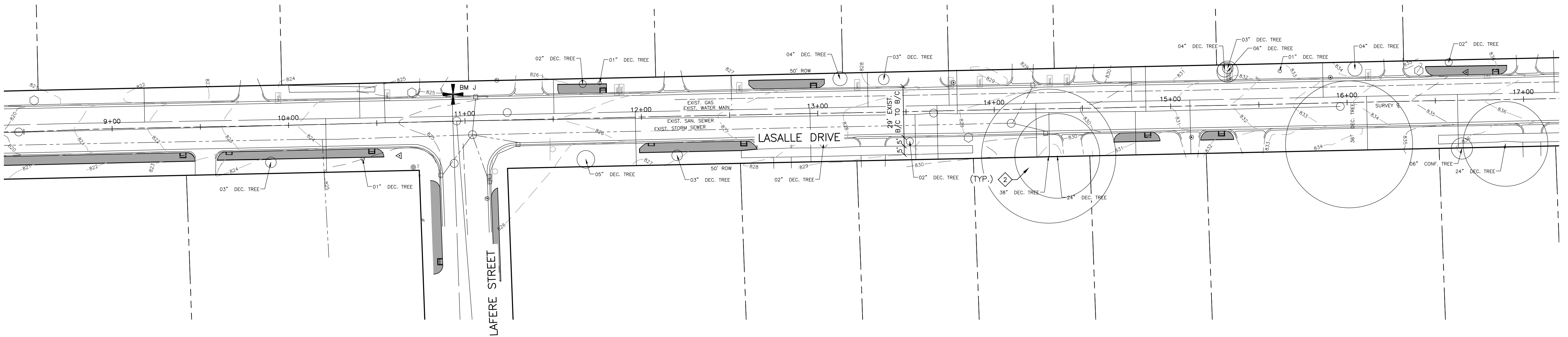
GREEN INFRASTRUCTURE IN SWIFT RUN
 CREEK DRIVE
 PROPOSED RAIN GARDEN LAYOUT

SCALE: PLAN: 1" = 30'
 DRAWING No. 60
 PROJECT NUMBER: 160177

REV.	DATE	DESCRIPTION
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		CHK
		DRAWN
		CHECKED



- NOTES:**
1. WATER SERVICE SHALL BE LOWERED IN THE AREA OF THE RAIN GARDEN.
 2. RAIN GARDENS ARE NOT PROPOSED WITHIN THE INFLUENCE OF THE CRITICAL ROOT ZONE. TREES OUTSIDE OF PUBLIC ROW WERE NOT SURVEYED.

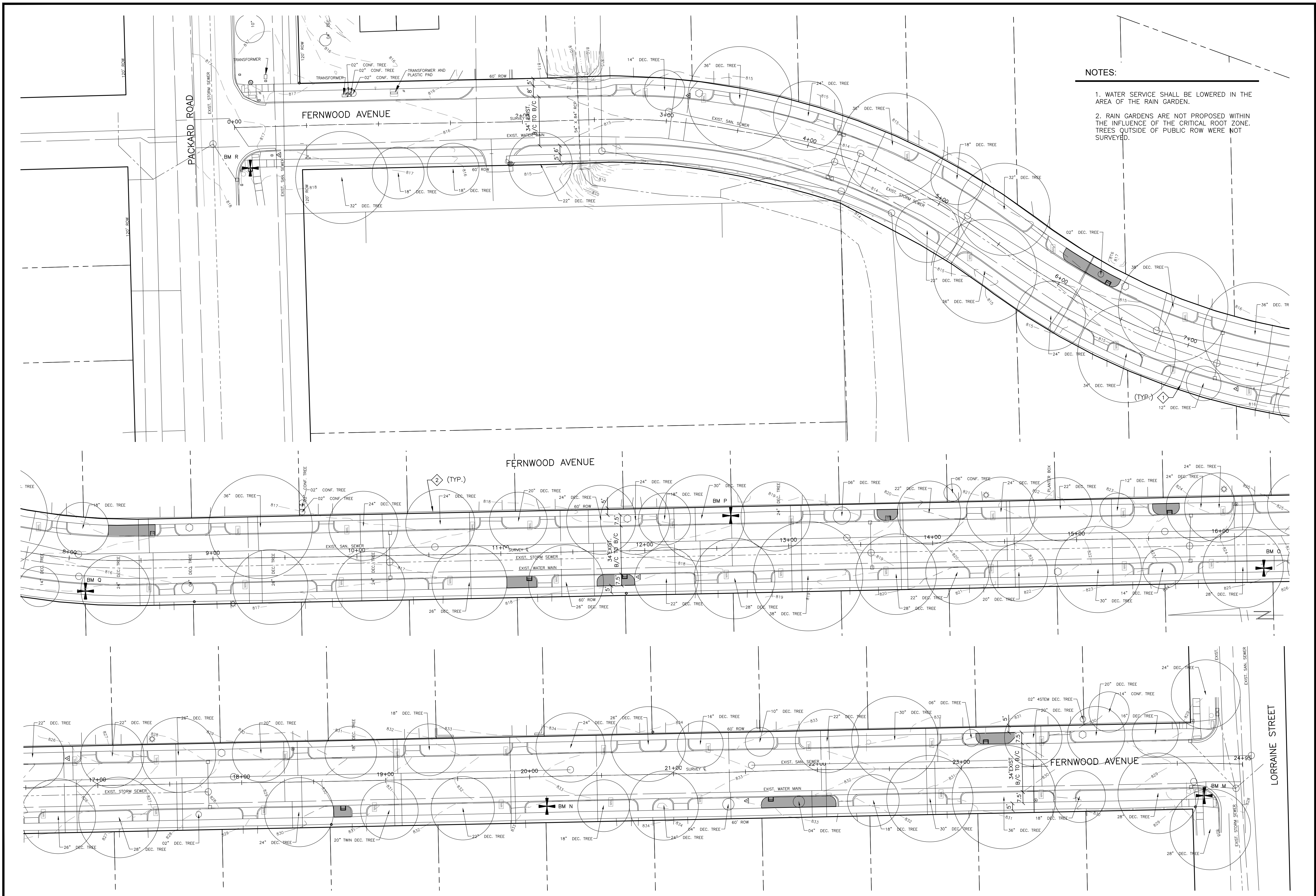


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GREEN INFRASTRUCTURE IN SWIFT RUN
 LASALLE DRIVE
 PROPOSED RAIN GARDEN LAYOUT

SCALE PLAN: 1" = 30'
 DRAWING No. 60
 PROJECT NUMBER: 160177



NOTES:

1. WATER SERVICE SHALL BE LOWERED IN THE AREA OF THE RAIN GARDEN.
2. RAIN GARDENS ARE NOT PROPOSED WITHIN THE INFLUENCE OF THE CRITICAL ROOT ZONE. TREES OUTSIDE OF PUBLIC ROW WERE NOT SURVEYED.



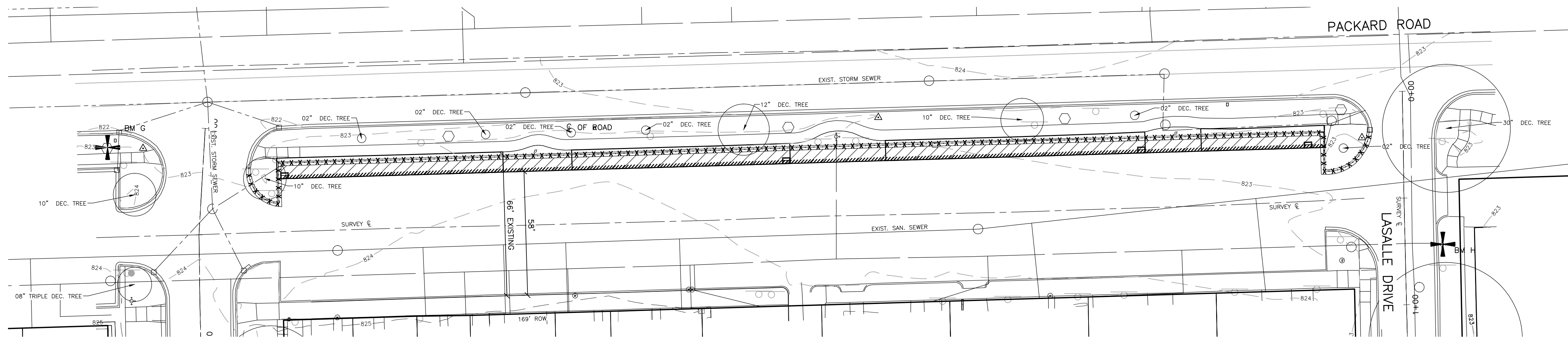
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		DRWN
		CHEK

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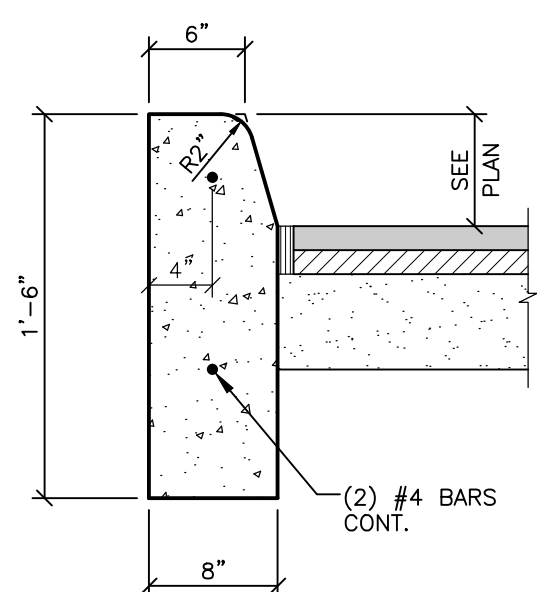


GREEN INFRASTRUCTURE IN SWIFT RUN
 FERNWOOD AVENUE
 PROPOSED RAIN GARDEN LAYOUT

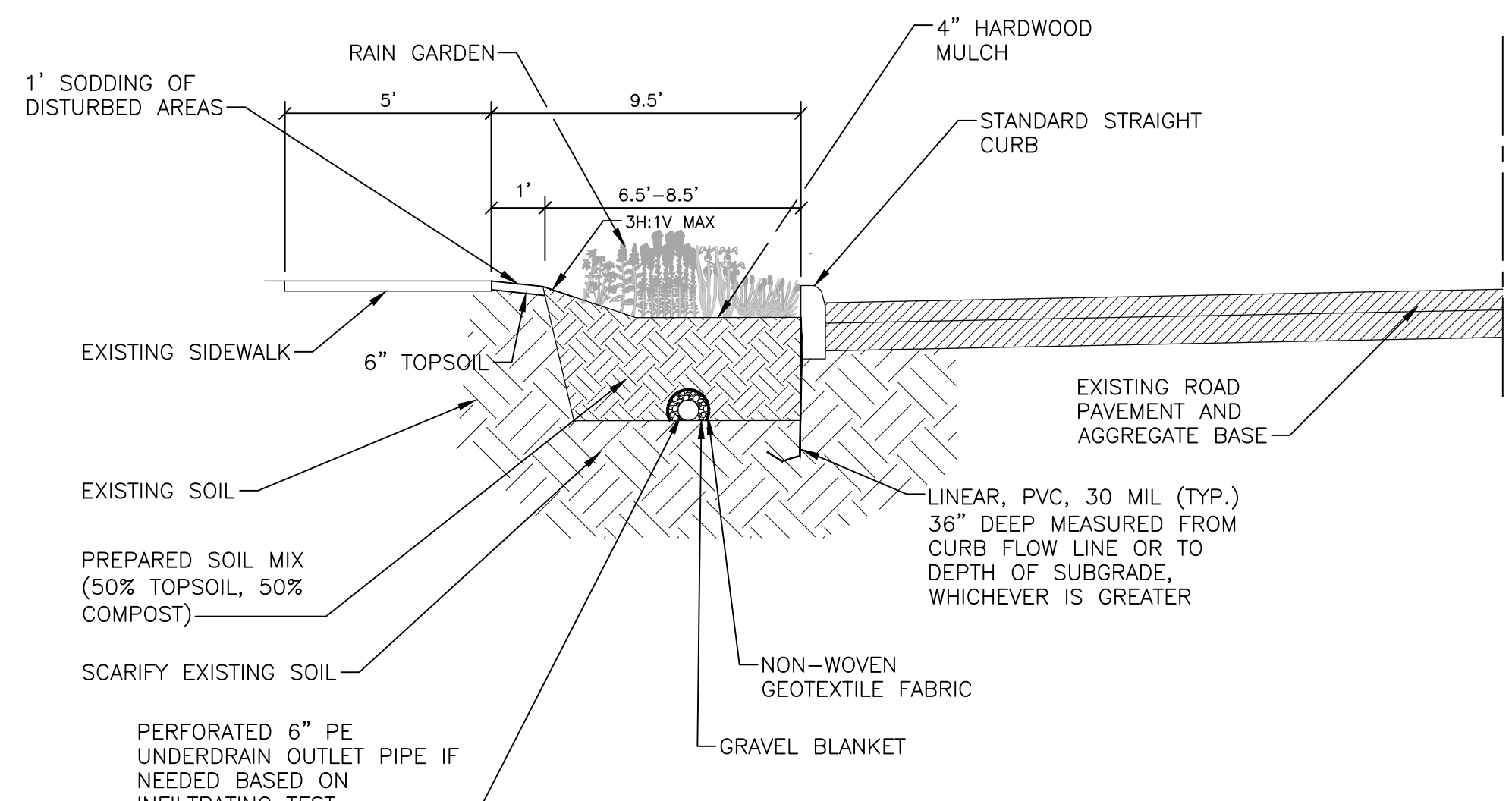
SCALE PLAN: 1" = 30'
 DRAWING No. 160177
 PROJECT NUMBER: 160177



EXISTING CONDITIONS AND REMOVAL PLAN
 SCALE: 1" = 30'
 NORTH



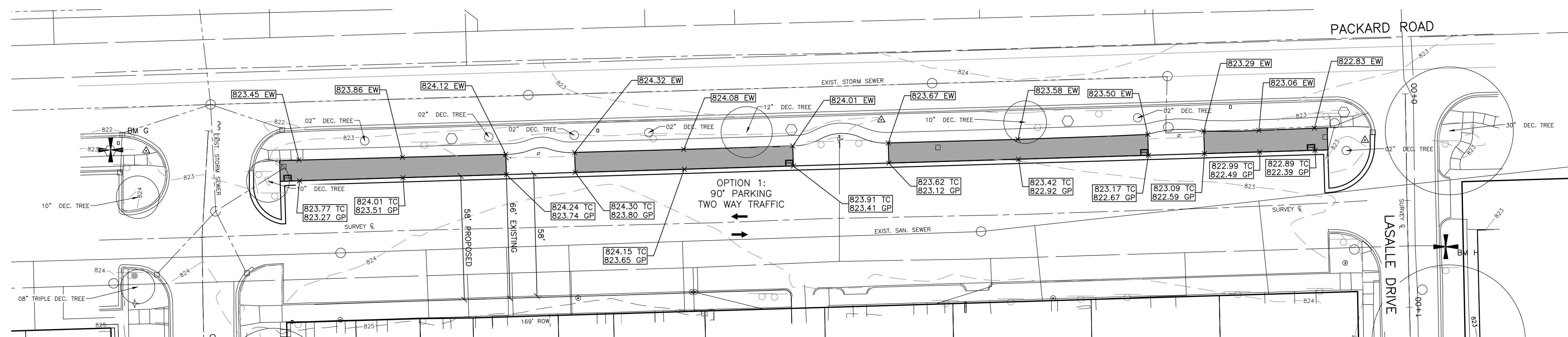
STANDARD STRAIGHT CURB
 NO SCALE
 02522-04
 WHEN NO REBAR IS REQUIRED FREEZE LAYER "REBAR".



ST AUBILE PROPOSED CROSS SECTION
 NO SCALE

REMOVAL LEGEND

REMOVE EXISTING PAVEMENT	
REMOVE EXISTING CURB & GUTTER	
SAWCUT EXISTING PAVEMENT	



PROPOSED LAYOUT PLAN
 SCALE: 1" = 30'
 NORTH

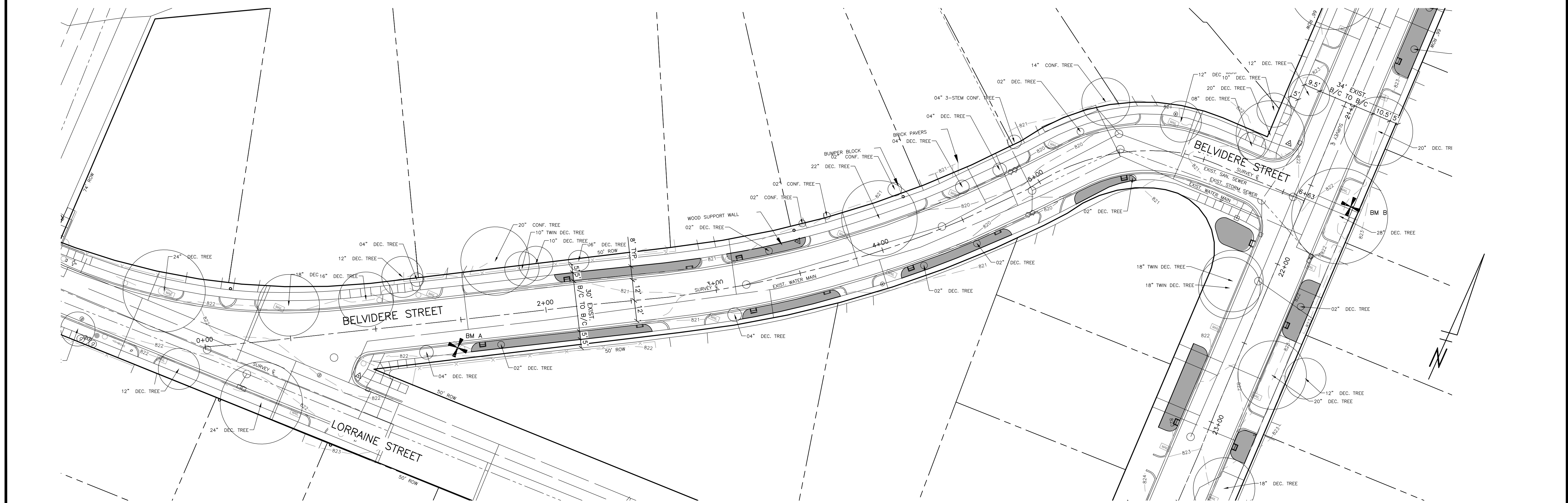
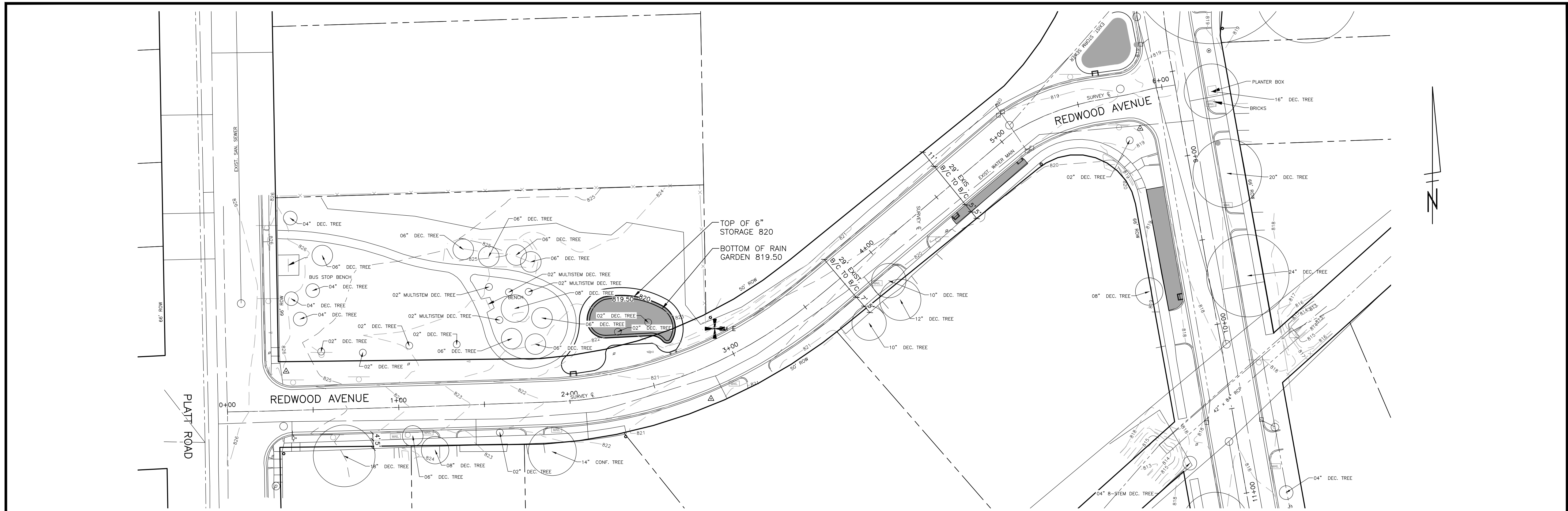


REV.	DATE	DESCRIPTION
01	07/05/16	FOR MEED SUBMITAL
		CHK
		DRAWN
		CHECKED

HURON RIVER COUNCIL
 WATER QUALITY
 1100 N MAIN STREET, SUITE 210
 ANN ARBOR, MI 48104
 734-769-5123
 www.hrwco.org

GREEN INFRASTRUCTURE IN SWIFT RUN
 PACKARD ROAD
 PROPOSED RAIN GARDEN LAYOUT

SCALE PLAN: 1" = 30'
 DRAWING No. 160177
 PROJECT NUMBER: 160177



REV.	DATE	DESCRIPTION
01	02/25/16	FOR CLIENT REVIEW
		DRAWN
		CHECKED

HURON RIVER
 WATERSHED COUNCIL
 1100 N MAIN STREET, SUITE 210
 ANN ARBOR, MI 48104
 734-769-5123
 www.huronc.org



GREEN INFRASTRUCTURE IN SWIFT RUN
 REDWOOD AVENUE AND BELVIDERE STREET
 PROPOSED RAIN GARDEN LAYOUT

SCALE PLAN: 1" = 30'
 0 1.5 3.0 6.0
 DRAWING No. 160177
 PROJECT NUMBER: 160177