



# GREAT BROOK VALLEY PARK IMPROVEMENTS

## CITY OF WORCESTER



33 Northeast Cutoff, Worcester, Massachusetts, 01605

CITY OF WORCESTER, MASSACHUSETTS

DEPARTMENT OF PARKS, RECREATION & CEMETERY  
50 Officer Manny Familia Way  
Worcester, MA 01605  
(508)929-1300

LANDSCAPE ARCHITECT / ENGINEER:  
WESTON & SAMPSON



Locus Map



GREAT BROOK VALLEY PARK



FOR ILLUSTRATIVE PURPOSES ONLY

PHASE ONE CONSTRUCTION DOCUMENTS

MAY 23, 2025

Prepared By



427 Main Street, Suite 400, Worcester, MA  
(508) 698-3034 (800) Sampson  
www.westonandsampson.com

www.westonandsampson.com

SHEET INDEX

SITE PLANS & DETAILS

L001.....	GENERAL NOTES
1 OF 1.....	EXISTING CONDITIONS
L100.....	EXISTING CONDITIONS PLAN
L200.....	SITE DEMOLITION AND PREPARATION PLAN
L201.....	SITE DEMOLITION AND PREPARATION PLAN - BID ALTERNATE
L300.....	MATERIALS PLAN
L301.....	MATERIALS PLAN - BID ALTERNATE
L400.....	LAYOUT PLAN
L401.....	LAYOUT PLAN - BID ALTERNATE
L500.....	GRADING PLAN
L501.....	GRADING PLAN - BID ALTERNATE
L600.....	PLANTING PLAN AND SCHEDULE
L601.....	PLANTING PLAN AND SCHEDULE - BID ALTERNATE
L900 - L906.....	SITE CONSTRUCTION DETAILS
L907.....	SITE CONSTRUCTION DETAILS - BID ALTERNATE

DRAINAGE PLANS & DETAILS

C100-101.....	DRAINAGE PLAN AND SCHEDULE
C102-103.....	DRAINAGE PLAN AND SCHEDULE - BID ALTERNATE
C500-502.....	CIVIL CONSTRUCTION DETAILS
C503.....	CIVIL CONSTRUCTION DETAILS - BID ALTERNATE

IRRIGATION PLANS & DETAILS

IR 100.....	IRRIGATION PLAN
IR 101.....	IRRIGATION PLAN - BID ALTERNATE
IR 200.....	IRRIGATION DETAILS

ELECTRICAL PLANS & DETAILS

E 000.....	ELECTRICAL LEGEND, SCHEDULES AND NOTES
E100 .....	ELECTRICAL SITE PLAN
E101.....	ELECTRICAL SITE PLAN - BID ALTERNATE
E 200.....	ELECTRICAL ONE-LINE DIAGRAM AND DETAILS
E 300-302.....	ELECTRICAL DETAILS
ED100.....	ELECTRICAL SITE PLAN DEMOLITION







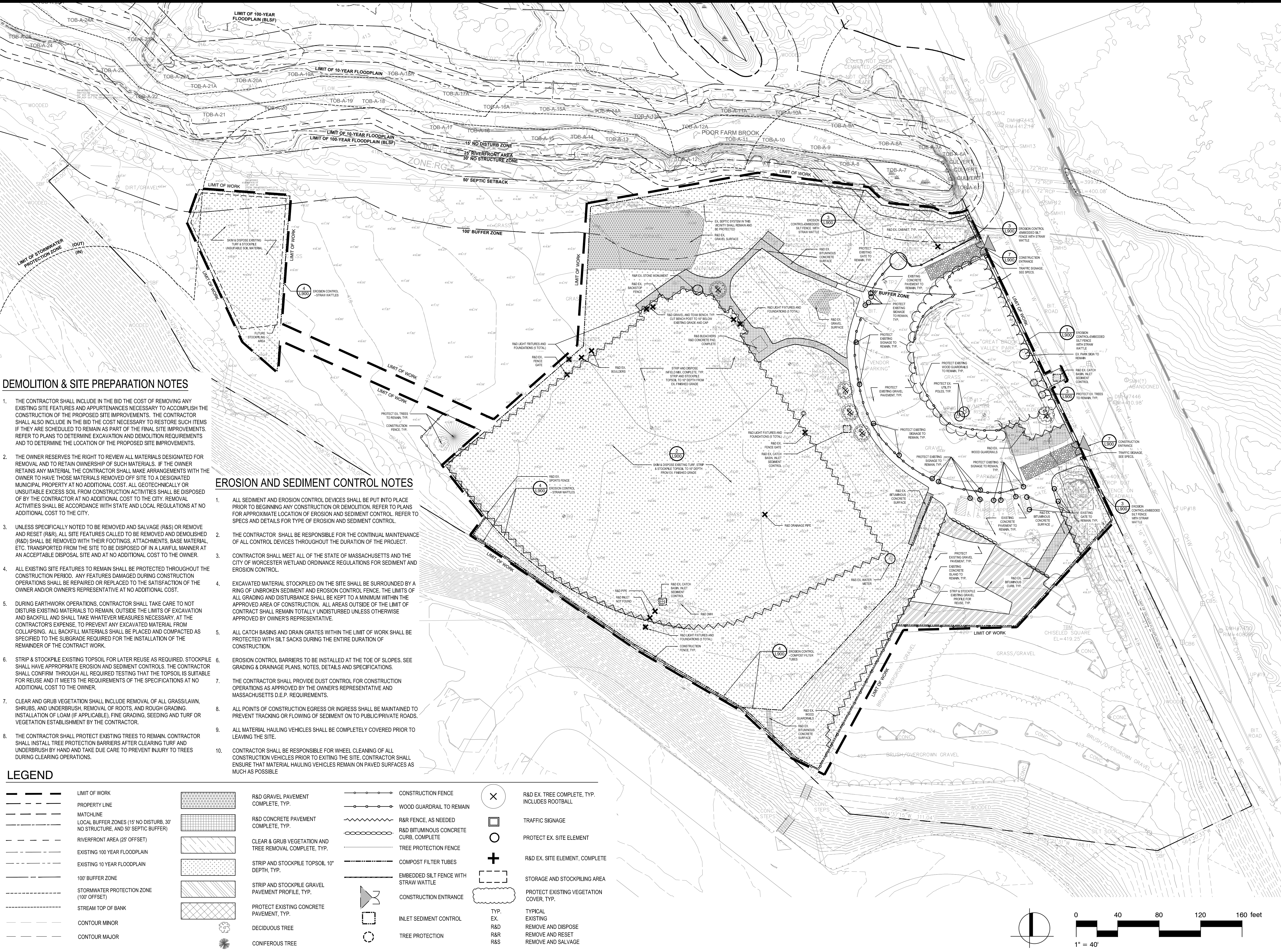









\\wds3\local\W&S\Projects\MA\Worcester\MA\Worcester-Grand Brook Valley\GIS-CADD\Sheets\L200 Site Demolition and Preparation Plan.dwg



Project:

**CITY OF WORCESTER**  
Dept. of Parks, Recreation & Cemetery



**GREAT BROOK VALLEY PARKS IMPROVEMENTS**  
33 Northeast Cutoff, Worcester, Massachusetts 01605

**Weston & Sampson**

427 Main St, Suite 400,  
Worcester, MA 01608  
508.762.1676 800.SAMPSON  
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

Seal:



Issued For:

**PHASE 1 CONSTRUCTION DOCUMENT**

Scale:

Date: MAY 23, 2025

Drawn By: EM. LY, RB

Reviewed By: MS, JJ

Approved By: BK

W&S Project No:

W&S File No:

Drawing Title:

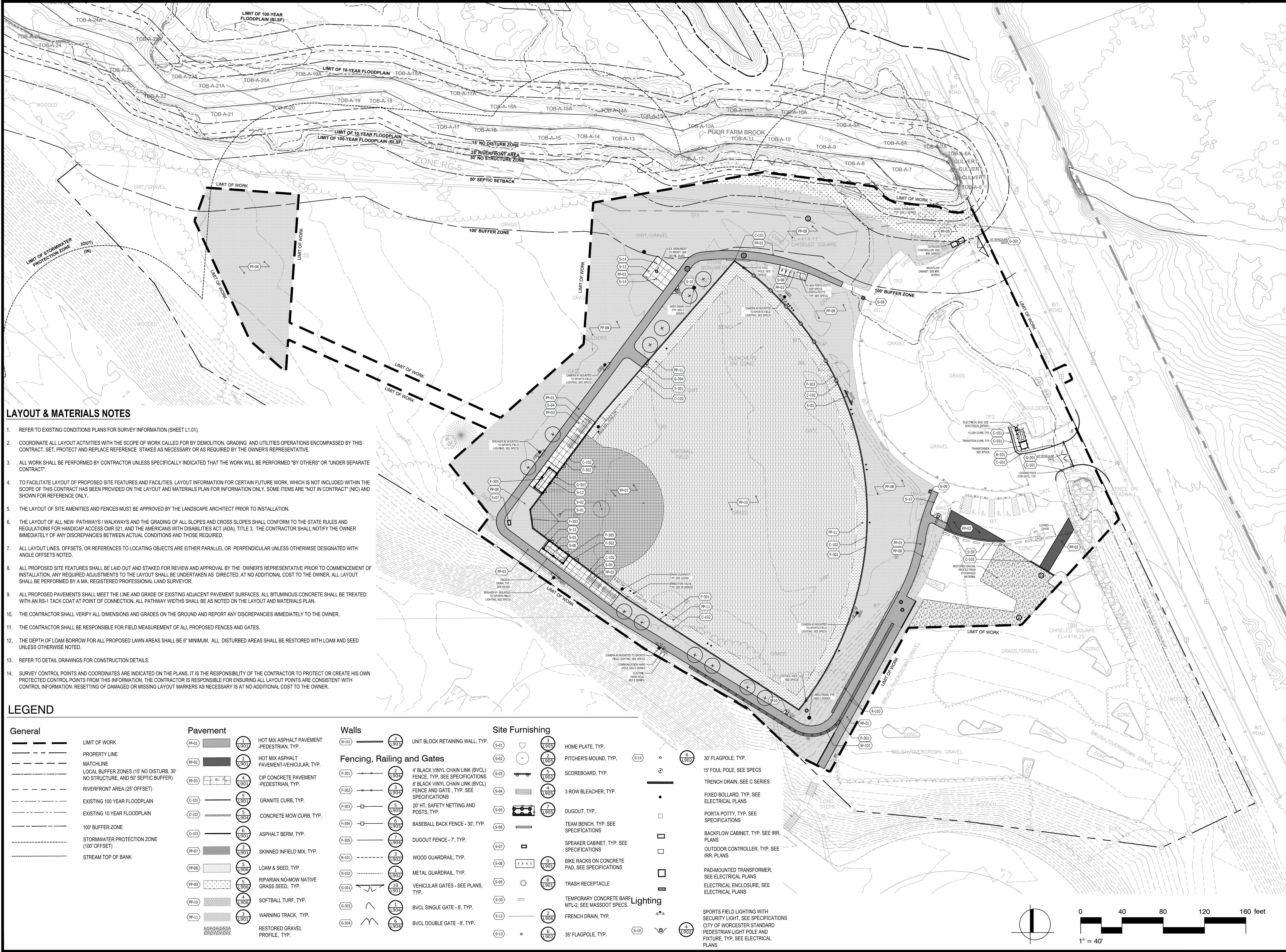
**SITE DEMOLITION AND PREPARATION PLAN**

Sheet Number:

**L200**

COPYRIGHT 2023 WESTON & SAMPSON





### LAYOUT & MATERIALS NOTES

1. REFER TO EXISTING CONDITIONS PLANS FOR SURVEY INFORMATION (SHEET L1.01).
2. COORDINATE ALL LAYOUT ACTIVITIES WITH THE SCOPE OF WORK CALLED FOR BY DEMOLITION, GRADING AND UTILITIES OPERATIONS ENCOMPASSED BY THIS CONTRACT. SET, PROTECT AND REPLACE REFERENCE STAKES AS NECESSARY OR AS REQUIRED BY THE OWNER'S REPRESENTATIVE.
3. ALL WORK SHALL BE PERFORMED BY CONTRACTOR UNLESS SPECIFICALLY INDICATED THAT THE WORK WILL BE PERFORMED "BY OTHERS" OR "UNDER SEPARATE CONTRACT".
4. TO FACILITATE LAYOUT OF PROPOSED SITE FEATURES AND FACILITIES, LAYOUT INFORMATION FOR CERTAIN FUTURE WORK, WHICH IS NOT INCLUDED WITHIN THE SCOPE OF THIS CONTRACT HAS BEEN PROVIDED ON THE LAYOUT AND MATERIALS PLAN FOR INFORMATION ONLY. SOME ITEMS ARE "NOT IN CONTRACT" (NIC) AND SHOWN FOR REFERENCE ONLY.
5. THE LAYOUT OF SITE AMENITIES AND FENCES MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
6. THE LAYOUT OF ALL NEW PATHWAYS / WALKWAYS AND THE GRADING OF ALL SLOPES AND CROSS SLOPES SHALL CONFORM TO THE STATE RULES AND REGULATIONS FOR HANDICAP ACCESS CMR 821, AND THE AMERICANS WITH DISABILITIES ACT (ADA), TITLE 3. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THOSE REQUIRED.
7. ALL LAYOUT LINES, OFFSETS, OR REFERENCES TO LOCATING OBJECTS ARE EITHER PARALLEL OR PERPENDICULAR UNLESS OTHERWISE DESIGNATED WITH ANGLE OFFSETS NOTED.
8. ALL PROPOSED SITE FEATURES SHALL BE LAID OUT AND STAKED FOR REVIEW AND APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF INSTALLATION, ANY REQUIRED ADJUSTMENTS TO THE LAYOUT SHALL BE UNDERTAKEN AS DIRECTED, AT NO ADDITIONAL COST TO THE OWNER. ALL LAYOUT SHALL BE PERFORMED BY A MA. REGISTERED PROFESSIONAL LAND SURVEYOR.
9. ALL PROPOSED PAVEMENTS SHALL MEET THE LINE AND GRADE OF EXISTING ADJACENT PAVEMENT SURFACES. ALL BITUMINOUS CONCRETE SHALL BE TREATED WITH AN RS-1 TACK COAT AT POINT OF CONNECTION. ALL PATHWAY WIDTHS SHALL BE AS NOTED ON THE LAYOUT AND MATERIALS PLAN.
10. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES ON THE GROUND AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD MEASUREMENT OF ALL PROPOSED FENCES AND GATES.
12. THE DEPTH OF LOAM BORROW FOR ALL PROPOSED LAWN AREAS SHALL BE 6" MINIMUM. ALL DISTURBED AREAS SHALL BE RESTORED WITH LOAM AND SEED UNLESS OTHERWISE NOTED.
13. REFER TO DETAIL DRAWINGS FOR CONSTRUCTION DETAILS.
14. SURVEY CONTROL POINTS AND COORDINATES ARE INDICATED ON THE PLANS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT OR CREATE HIS OWN PROTECTED CONTROL POINTS FROM THIS INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL LAYOUT POINTS ARE CONSISTENT WITH CONTROL INFORMATION. RESETTNG OF DAMAGED OR MISSING LAYOUT MARKERS AS NECESSARY IS AT NO ADDITIONAL COST TO THE OWNER.

### LEGEND

#### General

---	LIMIT OF WORK
---	PROPERTY LINE
---	MATCHLINE
---	LOCAL BUFFER ZONES (15' NO DISTURB, 30' NO STRUCTURE, AND 50' SEPTIC BUFFER)
---	RIVERFRONT AREA (25' OFFSET)
---	EXISTING 100 YEAR FLOODPLAIN
---	EXISTING 10 YEAR FLOODPLAIN
---	100' BUFFER ZONE
---	STORMWATER PROTECTION ZONE (100' OFFSET)
---	STREAM TOP OF BANK

#### Pavement

PP-01	1	1501	HOT MIX ASPHALT PAVEMENT -PEDESTRIAN, TYP.
PP-02	2	1502	HOT MIX ASPHALT PAVEMENT-VEHICULAR, TYP.
PP-03	4	1503	CIP CONCRETE PAVEMENT -PEDESTRIAN, TYP.
C-101	5	1504	GRANITE CURB, TYP.
C-102	5	1505	CONCRETE MOW CURB, TYP.
C-103	6	1506	ASPHALT BERM, TYP.
PP-07	3	1507	SKINNED INFELD MIX, TYP.
PP-08	2	1508	LOAM & SEED, TYP.
PP-09	5	1509	RIPARIAN NO-MOW NATIVE GRASS SEED, TYP.
PP-10	4	1510	SOFTBALL TURF, TYP.
PP-11	3	1511	WARNING TRACK, TYP.
			RESTORED GRAVEL PROFILE, TYP.

#### Walls

W-101	2	1503	UNIT BLOCK RETAINING WALL, TYP.
F-301	2	1504	4' BLACK VINYL CHAIN LINK (BVCL) FENCE, TYP. SEE SPECIFICATIONS
F-302	2	1505	8' BLACK VINYL CHAIN LINK (BVCL) FENCE AND GATE, TYP. SEE SPECIFICATIONS
F-303	5	1506	20' HT. SAFETY NETTING AND POSTS, TYP.
F-304	6	1507	BASEBALL BACK FENCE - 30', TYP.
F-305	7	1508	DUGOUT FENCE - 7', TYP.
R-101	3	1509	WOOD GUARDRAIL, TYP.
R-102	1	1510	METAL GUARDRAIL, TYP.
G-301	10	1511	VEHICULAR GATES - SEE PLANS, TYP.
G-303	1	1505	BVCL SINGLE GATE - 8', TYP.
G-304	6	1506	BVCL DOUBLE GATE - 8', TYP.

#### Site Furnishing


S-401	2	1505	HOME PLATE, TYP.
S-402	2	1506	PITCHER'S MOUND, TYP.
S-403	3	1507	SCOREBOARD, TYP.
S-404	4	1508	3 ROW BLEACHER, TYP.
S-405	7	1509	DUGOUT, TYP.
S-406			TEAM BENCH, TYP. SEE SPECIFICATIONS
S-407			SPEAKER CABINET, TYP. SEE SPECIFICATIONS
S-408	9	1510	BIKE RACKS ON CONCRETE PAD, SEE SPECIFICATIONS
S-409	8	1511	TRASH RECEPTACLE
S-410	2	1505	TEMPORARY CONCRETE BARRIERS - MTL-2, SEE MASSDOT SPECS.
S-412	2	1506	FRENCH DRAIN, TYP.
S-413	6	1507	35' FLAGPOLE, TYP.

#### Lighting

L-101	4	1507	SPORTS FIELD LIGHTING WITH SECURITY LIGHT, SEE SPECIFICATIONS
L-102			CITY OF WORCESTER STANDARD PEDESTRIAN LIGHT POLE AND FIXTURE, TYP. SEE ELECTRICAL PLANS

Project:

**CITY OF WORCESTER**  
Dept. of Parks, Recreation & Cemetery



**GREAT BROOK VALLEY PARKS IMPROVEMENTS**  
33 Northeast Cutoff, Worcester, Massachusetts 01605

**Weston & Sampson**


427 Main St. Suite 400,  
Worcester, MA 01608  
508.762.1676 800.SAMPSON  
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

Seal:



Issued For:

**PHASE 1 CONSTRUCTION DOCUMENT**

Scale:

Date: MAY 23, 2025

Drawn By: EM. LY, RB

Reviewed By: MS. JJ

Approved By: BK

W&S Project No:

W&S File No:

Drawing Title:

**MATERIALS PLAN**

Sheet Number:

**L300**

COPYRIGHT 2023 WESTON & SAMPSON







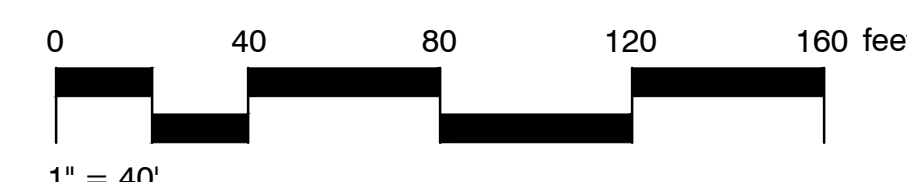
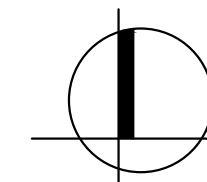
\\land3.local\W&S\Projects\MA\Worcester\MA\Worcester\Great Brook Valley\Great Brook Valley\GIS\CAD\Sheets\L400 Layout Planning

## LEGEND

### General


	LIMIT OF WORK
	PROPERTY LINE
	MATCHLINE
	LOCAL BUFFER ZONES (15' NO DIST NO STRUCTURE, AND 50' SEPTIC BU
	RIVERFRONT AREA (25' OFFSET)
	EXISTING 100 YEAR FLOODPLAIN
	EXISTING 10 YEAR FLOODPLAIN
	100' BUFFER ZONE
	STORMWATER PROTECTION ZONE (100' OFFSET)
	STREAM TOP OF BANK

	TYP. DIMENSION
	TYP. ARC DIMENSION
	TYP. ANGLE DIMENSION



Project:

**CITY OF WORCESTER**  
Dept. of Parks, Recreation & Cemetery



**GREAT BROOK VALLEY PARKS  
IMPROVEMENTS**  
33 Northeast Cutoff, Worcester,  
Massachusetts 01605

**Weston & Sampson**

427 Main St. Suite 400,  
Worcester, MA 01608  
508.762.1676 800.SAMPSON  
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

Seal:



Issued For:

**PHASE 1  
CONSTRUCTION  
DOCUMENT**

Scale:

Date: MAY 23, 2025  
Drawn By: EM, LY, RB  
Reviewed By: MS, JJ  
Approved By: BK

W&S Project No:  
W&S File No:

Drawing Title:

**LAYOUT PLAN**

Sheet Number:

**L400**

COPYRIGHT 2023 WESTON & SAMPSON

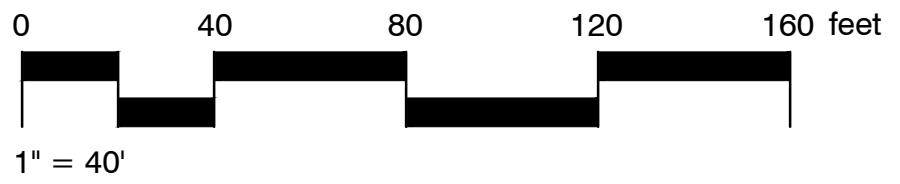
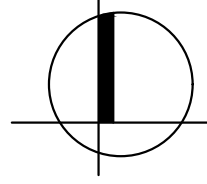


\\land3.local\W&S\Projects\MA\Worcester\MA\Worcester\Great Brook Valley\Great Brook Valley\GIS\CAD\Drawings\L401 Layout Plan - Bid ALT 1.dwg

## LEGEND

### General

	LIMIT OF WORK
	PROPERTY LINE
	MATCHLINE
	LOCAL BUFFER ZONES (15' NO DIST NO STRUCTURE, AND 50' SEPTIC BU)
	RIVERFRONT AREA (25' OFFSET)
	EXISTING 100 YEAR FLOODPLAIN
	EXISTING 10 YEAR FLOODPLAIN
	100' BUFFER ZONE
	STORMWATER PROTECTION ZONE (100' OFFSET)
	STREAM TOP OF BANK
	PROPOSED COMPENSATORY FLOOD STORAGE MITIGATION AREA
	PROPOSED FLOODPLAIN
	TYP. DIMENSION
	TYP. ARC DIMENSION
	TYP. ANGLE DIMENSION



Project:

**CITY OF WORCESTER**  
Dept. of Parks, Recreation & Cemetery



**GREAT BROOK VALLEY PARKS  
IMPROVEMENTS**  
33 Northeast Cutoff, Worcester,  
Massachusetts 01605

**Weston & Sampson**

427 Main St, Suite 400,  
Worcester, MA 01608  
508.762.1676 800.SAMPSON  
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

Seal:



Issued For:

**PHASE 1  
CONSTRUCTION  
DOCUMENT**

Scale:

Date: MAY 23, 2025

Drawn By: EM, LY, RB

Reviewed By: MS, JJ

Approved By: BK

W&S Project No:

W&S File No:

Drawing Title:

**LAYOUT PLAN - BID ALT 1**

Sheet Number:

**L401**



\\wds3\local\W&S\Projects\MA\Worcester\MA\Worcester-Grand Brook Valley\Grd-CAD\Sheets\L500 Grading-Plan.dwg



## LEGEND

	LIMIT OF WORK
	PROPERTY LINE
	MATCHLINE
	LOCAL BUFFER ZONES (15' NO DISTURB, 30' NO STRUCTURE, AND 50' SEPTIC BUFFER)
	RIVERFRONT AREA (25' OFFSET)
	EXISTING 100 YEAR FLOODPLAIN
	EXISTING 10 YEAR FLOODPLAIN
	100' BUFFER ZONE
	STORMWATER PROTECTION ZONE (100' OFFSET)
	STREAM TOP OF BANK
	COLLECTOR DRAIN
	LATERAL DRAIN
	FRENCH DRAIN
	TRENCH DRAIN, SEE C SERIES
	PROPOSED SWALE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	GRADE BREAK
	SPOT ELEVATION
	SLOPE
	TYP.
	EX.
	R&D
	R&R
	R&S
	REMOVE AND DISPOSE
	REMOVE AND RESET
	REMOVE AND SALVAGE

## GRADING & FIELD DRAINAGE NOTES

- ALL WORK RELATING TO INSTALLATION, RENOVATION OR MODIFICATION OF DRAINAGE SERVICES SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS OF THE CITY OF WORCESTER AND ITS DEPARTMENT OF PUBLIC WORKS.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, GRADES AND INVERT ELEVATIONS IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER AND OWNER'S REPRESENTATIVE.
- ALL NEW WALKWAYS MUST CONFORM TO DRAWINGS AND TO CURRENT AMERICANS WITH DISABILITIES ACT (ADA) REGULATIONS: WALKWAYS SHALL MAINTAIN A CROSS PITCH OF NOT MORE THAN TWO (2%) PERCENT MAXIMUM AND THE RUNNING SLOPE (PARALLEL TO THE DIRECTION OF TRAVEL) OF FIVE (5%) PERCENT MAXIMUM.
- MINIMUM SLOPE ON ALL WALKWAYS WILL BE 1:100 OR 1% TO PROVIDE POSITIVE DRAINAGE. ANY DISCREPANCIES NOT ALLOWING THIS TO OCCUR SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE PRIOR TO CONTINUING WORK.
- ALL UTILITY GRATES, COVERS OR OTHER SURFACE ELEMENTS INTENDED TO BE EXPOSED AT GRADE SHALL BE FLUSH WITH THE ADJACENT FINISHED GRADE AND ADJUSTED TO PROVIDE A SMOOTH TRANSITION AT ALL EDGES.
- THE CONTRACTOR SHALL SET SUBGRADE ELEVATIONS TO ALLOW FOR POSITIVE DRAINAGE AND PROVIDE EROSION CONTROL DEVICES, STRUCTURES, MATERIALS AND CONSTRUCTION METHODS TO DIRECT SILT MIGRATION AWAY FROM DRAINAGE AND OTHER UTILITY SYSTEMS, PUBLIC/PRIVATE STREETS AND WORK AREAS. CLEAN BASINS REGULARLY AND AT THE END OF THE PROJECT.
- CONTRACTOR SHALL ENSURE ALL AREAS ARE PROPERLY PITCHED TO DRAIN, WITH NO SURFACE WATER PONDING OR PUDDLING.
- EXCAVATION REQUIRED WITHIN PROXIMITY OF KNOWN EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
- WHERE NEW EARTHWORK MEETS EXISTING EARTHWORK, CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY INTO EXISTING, PROVIDING VERTICAL CURVES OR ROUNDS AT ALL TOP AND BOTTOM OF SLOPES.
- WHERE A SPECIFIC LIMIT OF WORK LINE IS NOT OBVIOUS OR IMPLIED, BLEND GRADES TO EXISTING CONDITIONS WITHIN 5 FEET OF PROPOSED CONTOURS.
- RESTORE ALL DISTURBED AREAS AND LIMITS OF ALL REMOVALS TO LOAM AND SPECIFIED CONSERVATION SEED MIX UNLESS OTHERWISE NOTED.
- WHERE NEW IMPROVEMENTS MEET EXISTING CONDITIONS, MEET LINE AND GRADE OF EXISTING ADJACENT PAVEMENTS, TYPICAL.

Project:

CITY OF WORCESTER  
Dept. of Parks, Recreation & Cemetery



GREAT BROOK VALLEY PARKS  
IMPROVEMENTS  
33 Northeast Cutoff, Worcester,  
Massachusetts 01605

Weston & Sampson

427 Main St. Suite 400,  
Worcester, MA 01608  
508.762.1676 800.SAMPSON  
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

Seal:



Issued For:

**PHASE 1  
CONSTRUCTION  
DOCUMENT**

Scale:

Date: MAY 23, 2025

Drawn By: EM. LY, RB

Reviewed By: MS, JJ

Approved By: BK

W&S Project No:

W&S File No:

Drawing Title:

**GRADING PLAN +  
FIELD DRAINAGE**

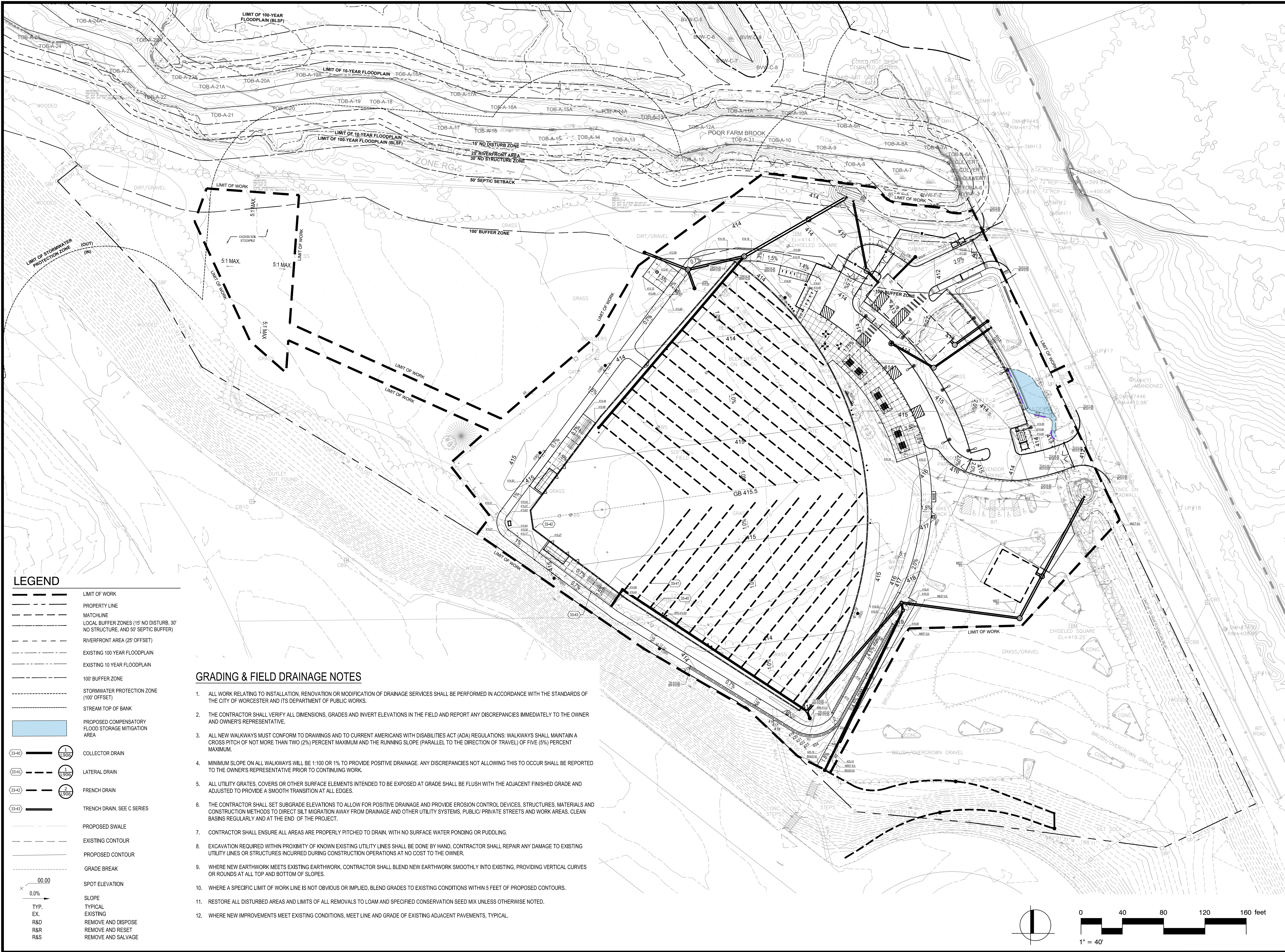
Sheet Number:

**L500**

COPYRIGHT 2023 WESTON & SAMPSON



\\nas03.local\W&S\Projects\MA\Worcester\MA\Grading\Grading Plan - Bid Alt 1.dwg



## LEGEND

	LIMIT OF WORK
	PROPERTY LINE
	MATCHLINE
	LOCAL BUFFER ZONES (15' NO DISTURB, 30' NO STRUCTURE, AND 50' SEPTIC BUFFER)
	RIVERFRONT AREA (25' OFFSET)
	EXISTING 100 YEAR FLOODPLAIN
	EXISTING 10 YEAR FLOODPLAIN
	100' BUFFER ZONE
	STORMWATER PROTECTION ZONE (100' OFFSET)
	STREAM TOP OF BANK
	PROPOSED COMPENSATORY FLOOD STORAGE MITIGATION AREA
	COLLECTOR DRAIN
	LATERAL DRAIN
	FRENCH DRAIN
	TRENCH DRAIN, SEE C SERIES
	PROPOSED SWALE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	GRADE BREAK
	SPOT ELEVATION
	SLOPE
	TYP. EXISTING
	REMOVE AND DISPOSE
	REMOVE AND RESET
	REMOVE AND SALVAGE

## GRADING & FIELD DRAINAGE NOTES

- ALL WORK RELATING TO INSTALLATION, RENOVATION OR MODIFICATION OF DRAINAGE SERVICES SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS OF THE CITY OF WORCESTER AND ITS DEPARTMENT OF PUBLIC WORKS.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, GRADES AND INVERT ELEVATIONS IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER AND OWNER'S REPRESENTATIVE.
- ALL NEW WALKWAYS MUST CONFORM TO DRAWINGS AND TO CURRENT AMERICANS WITH DISABILITIES ACT (ADA) REGULATIONS: WALKWAYS SHALL MAINTAIN A CROSS PITCH OF NOT MORE THAN TWO (2%) PERCENT MAXIMUM AND THE RUNNING SLOPE (PARALLEL TO THE DIRECTION OF TRAVEL) OF FIVE (5%) PERCENT MAXIMUM.
- MINIMUM SLOPE ON ALL WALKWAYS WILL BE 1:100 OR 1% TO PROVIDE POSITIVE DRAINAGE. ANY DISCREPANCIES NOT ALLOWING THIS TO OCCUR SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE PRIOR TO CONTINUING WORK.
- ALL UTILITY GRATES, COVERS OR OTHER SURFACE ELEMENTS INTENDED TO BE EXPOSED AT GRADE SHALL BE FLUSH WITH THE ADJACENT FINISHED GRADE AND ADJUSTED TO PROVIDE A SMOOTH TRANSITION AT ALL EDGES.
- THE CONTRACTOR SHALL SET SUBGRADE ELEVATIONS TO ALLOW FOR POSITIVE DRAINAGE AND PROVIDE EROSION CONTROL DEVICES, STRUCTURES, MATERIALS AND CONSTRUCTION METHODS TO DIRECT SILT MIGRATION AWAY FROM DRAINAGE AND OTHER UTILITY SYSTEMS, PUBLIC/ PRIVATE STREETS AND WORK AREAS. CLEAN BASINS REGULARLY AND AT THE END OF THE PROJECT.
- CONTRACTOR SHALL ENSURE ALL AREAS ARE PROPERLY PITCHED TO DRAIN, WITH NO SURFACE WATER PONDING OR PUDDLING.
- EXCAVATION REQUIRED WITHIN PROXIMITY OF KNOWN EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
- WHERE NEW EARTHWORK MEETS EXISTING EARTHWORK, CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY INTO EXISTING, PROVIDING VERTICAL CURVES OR ROUNDS AT ALL TOP AND BOTTOM OF SLOPES.
- WHERE A SPECIFIC LIMIT OF WORK LINE IS NOT OBVIOUS OR IMPLIED, BLEND GRADES TO EXISTING CONDITIONS WITHIN 5 FEET OF PROPOSED CONTOURS.
- RESTORE ALL DISTURBED AREAS AND LIMITS OF ALL REMOVALS TO LOAM AND SPECIFIED CONSERVATION SEED MIX UNLESS OTHERWISE NOTED.
- WHERE NEW IMPROVEMENTS MEET EXISTING CONDITIONS, MEET LINE AND GRADE OF EXISTING ADJACENT PAVEMENTS, TYPICAL.

Project:

CITY OF WORCESTER  
Dept. of Parks, Recreation & Cemetery



GREAT BROOK VALLEY PARKS  
IMPROVEMENTS  
33 Northeast Cutoff, Worcester,  
Massachusetts 01605

Weston & Sampson

427 Main St, Suite 400,  
Worcester, MA 01608  
508.762.1676 800.SAMPSON  
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

Seal:



Issued For:

**PHASE 1  
CONSTRUCTION  
DOCUMENT**

Scale:

Date: MAY 23, 2025

Drawn By: EM, LY, RB

Reviewed By: MS, JJ

Approved By: BK

W&S Project No:

W&S File No:

Drawing Title:

**GRADING PLAN +  
FIELD DRAINAGE -  
BID ALT 1**

Sheet Number:

**L501**





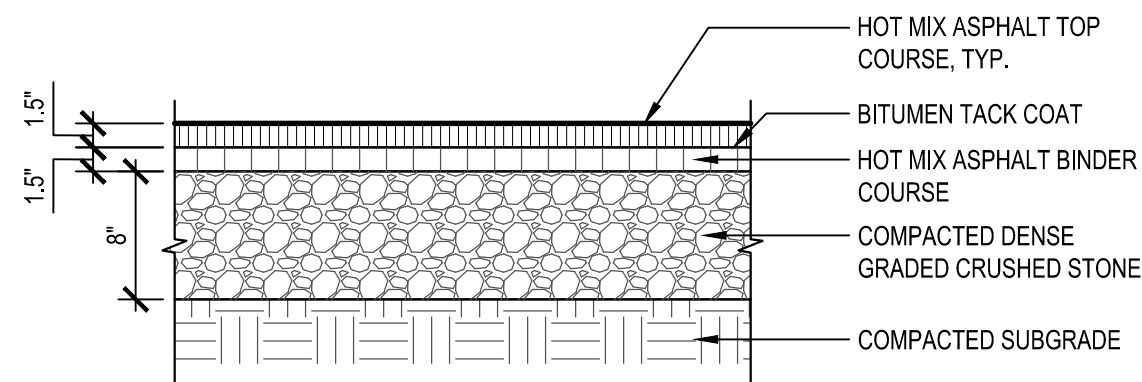






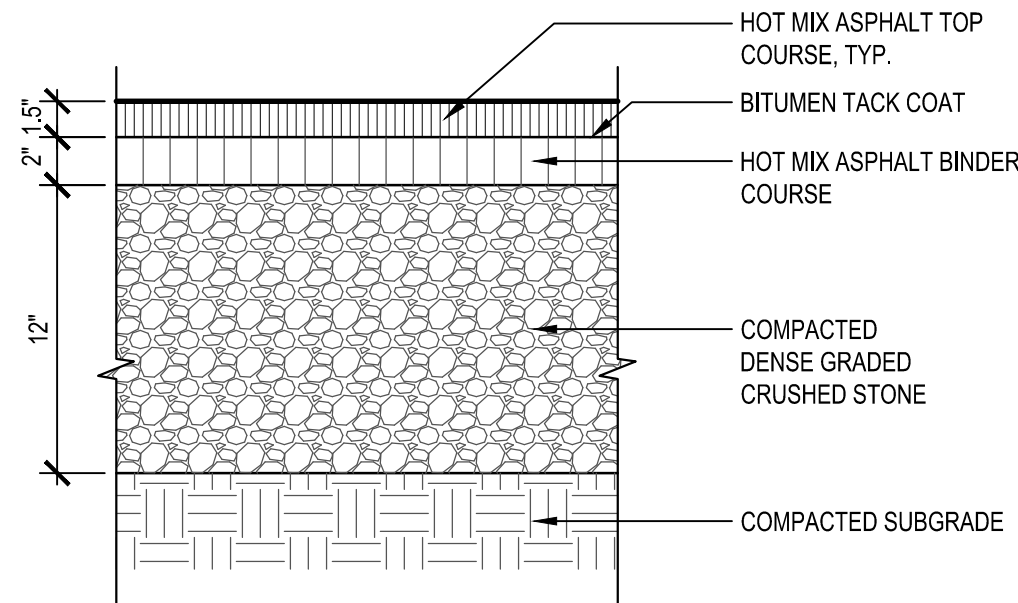






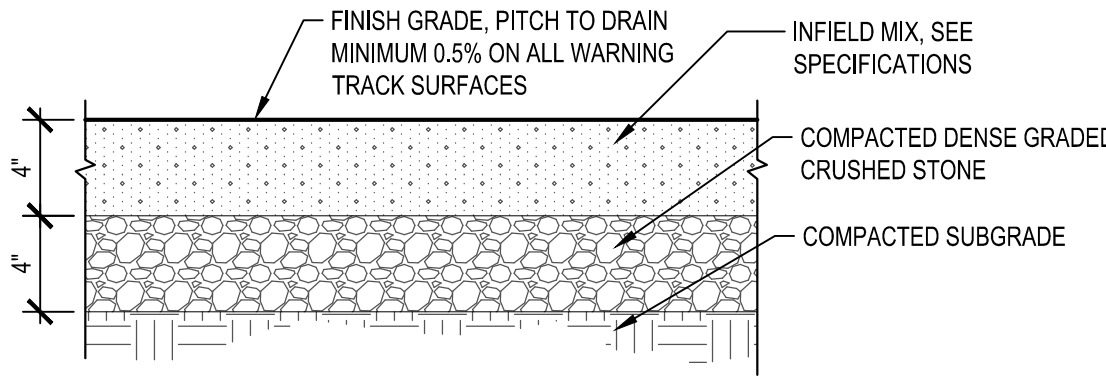
- NOTE:
1. CONTRACTOR TO SAW-CUT, TACK COAT AND PROVIDE SMOOTH TRANSITION WHERE EXISTING PAVEMENT ABUTS NEW PAVEMENT.
  2. ALL EDGES TO BE NEATLY TAMPED.

1 HOT MIX ASPHALT PAVEMENT - PEDESTRIAN  
NOT TO SCALE



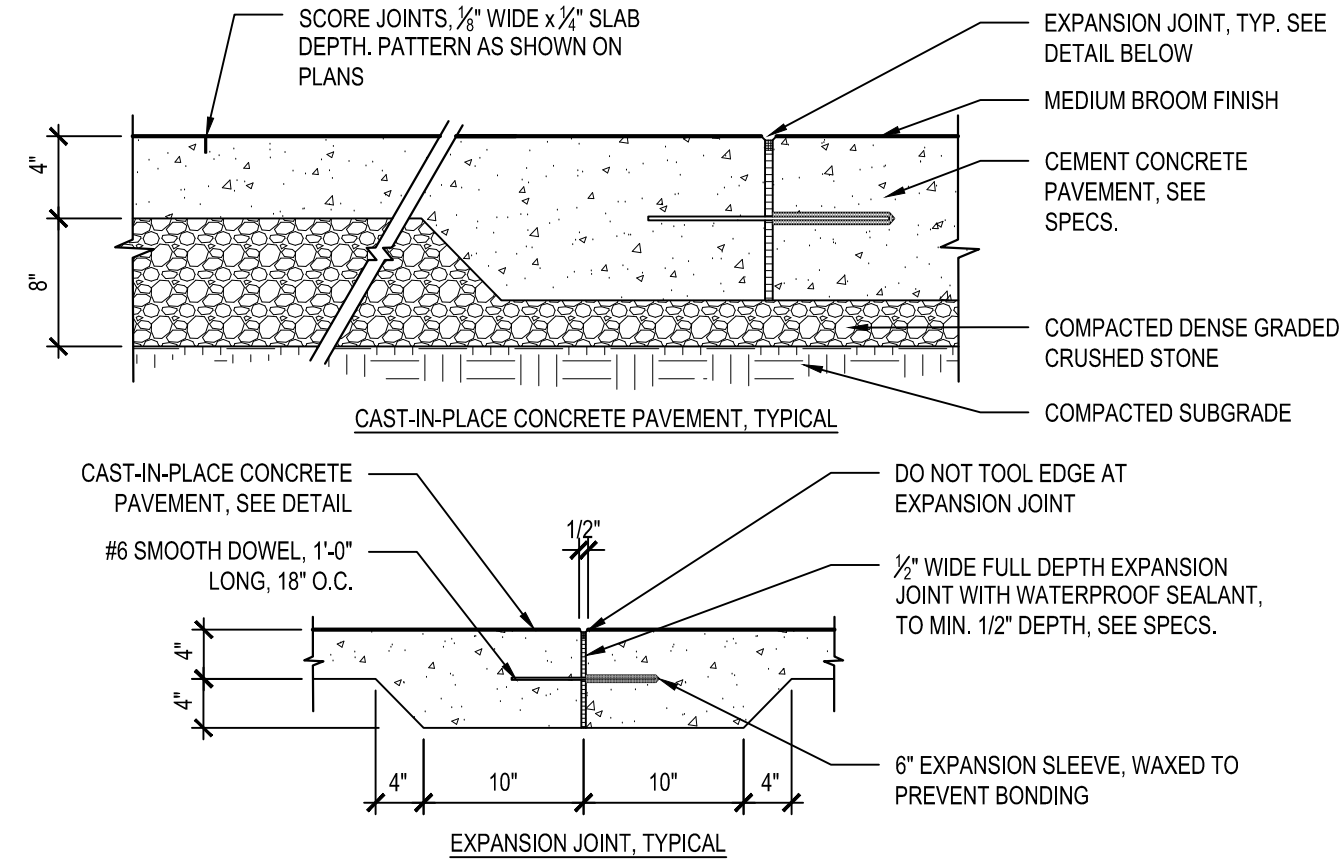
- NOTE:
1. CONTRACTOR TO SAW-CUT, TACK COAT AND PROVIDE SMOOTH TRANSITION WHERE EXISTING PAVEMENT ABUTS NEW PAVEMENT.
  2. ALL EDGES TO BE NEATLY TAMPED.

2 HOT MIX ASPHALT PAVEMENT - VEHICULAR  
NOT TO SCALE MA-WO-GRE-13



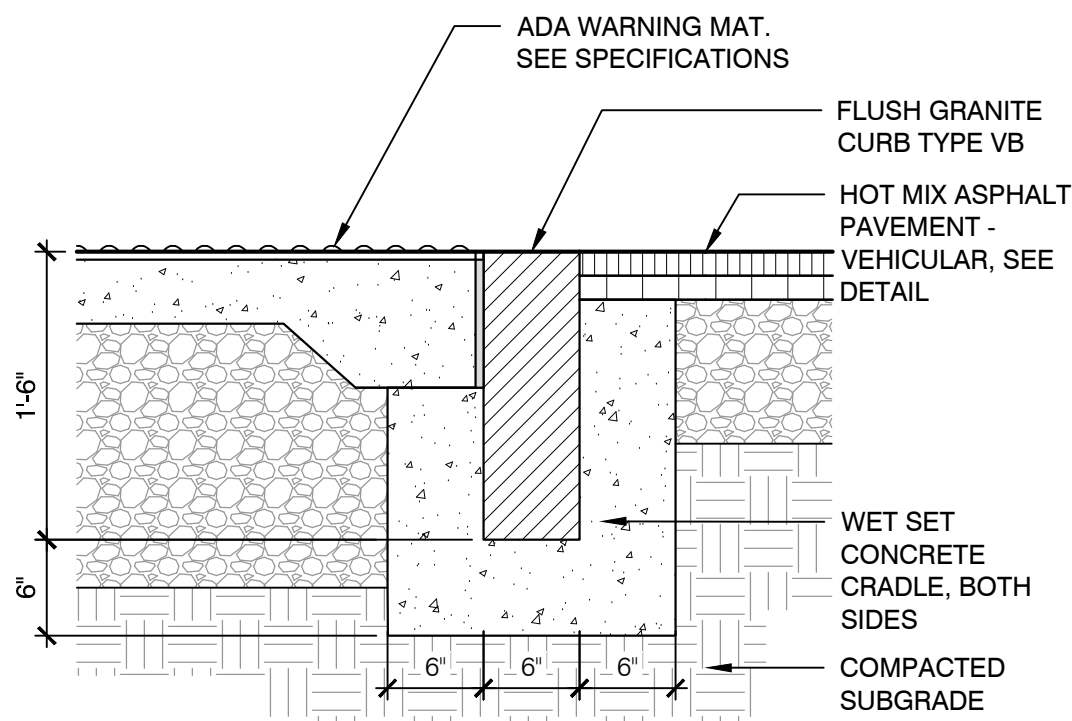
- NOTES:
1. CONTRACTOR SHALL APPLY APPROVED PRE-EMERGENT WEED KILLER AT SUBGRADE PRIOR TO INSTALLATION OF WARNING TRACK MIX
  2. SEE SPECIFICATION FOR WARNING TRACK MIX PRODUCT INFORMATION

3 INFIELD MIX AND WARNING TRACK  
NOT TO SCALE MA-WO-GRE-80

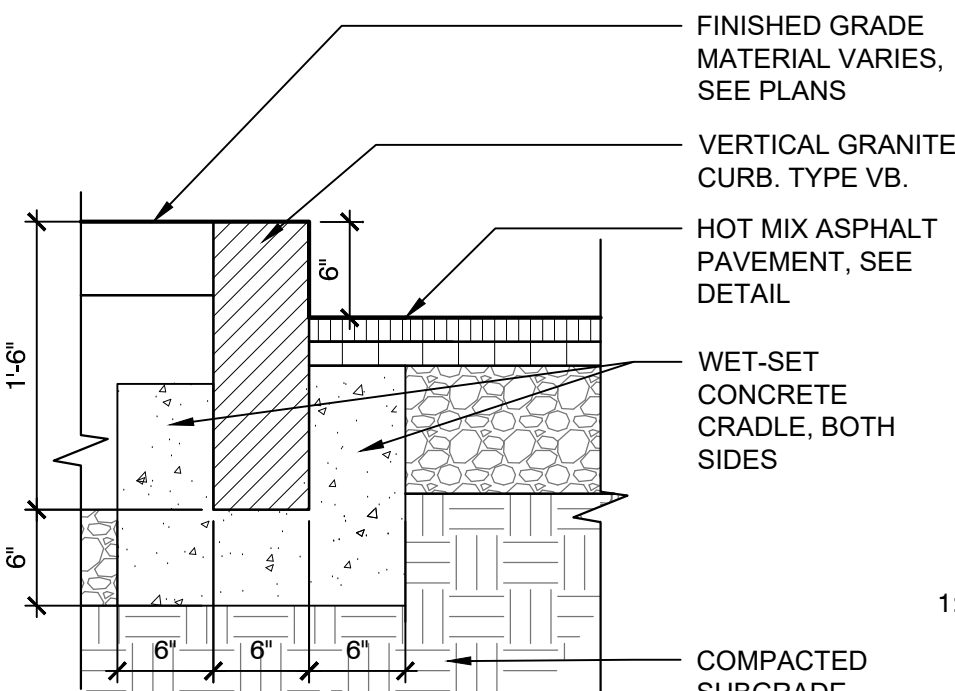


- EXPANSION JOINT INSTALLATION NOTES:
1. DOWEL IS TYPICAL AT ALL EXPANSION JOINTS (18" O.C.) WITHIN CONCRETE PAVING AND BETWEEN NEW CONCRETE PAVING AND EXISTING CONCRETE PAVING TO REMAIN.
  2. DELETE EXPANSION SLEEVE AND DOWEL WHERE JOINT ABUTS WALL, CURBS, OR OTHER VERTICAL SURFACES, UNLESS OTHERWISE NOTED.
  3. EXPANSION JOINTS MAX. 25'-0" O.C. UNLESS SHOWN OTHERWISE.
  4. EXPANSION JOINTS SHALL BE PLACED WHERE NEW CEMENT CONCRETE PAVEMENT MEETS EXISTING PAVEMENT OR WALLS TO REMAIN.
  5. ALL EXPANSION JOINTS SHALL BE SAW CUT.

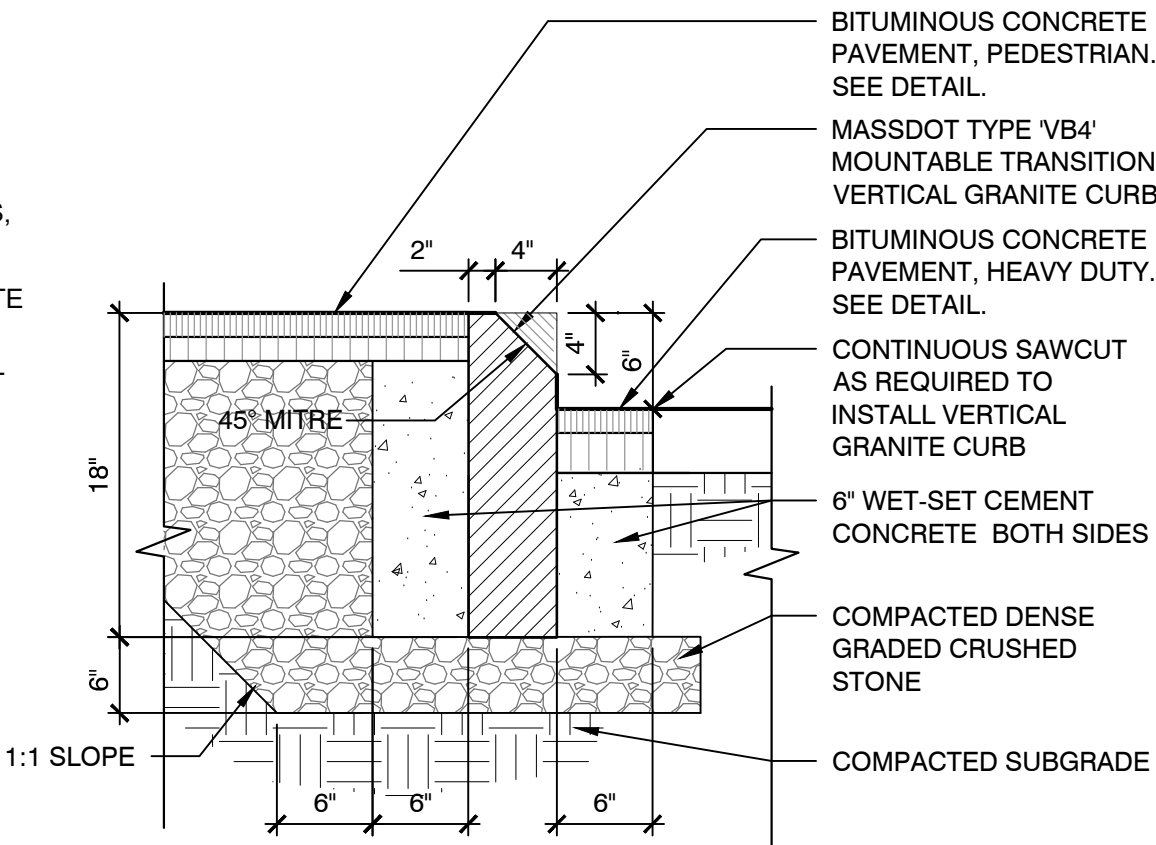
4 CAST-IN-PLACE CONCRETE PAVEMENT AND EXPANSION JOINT  
NOT TO SCALE MA-WO-GRE-95



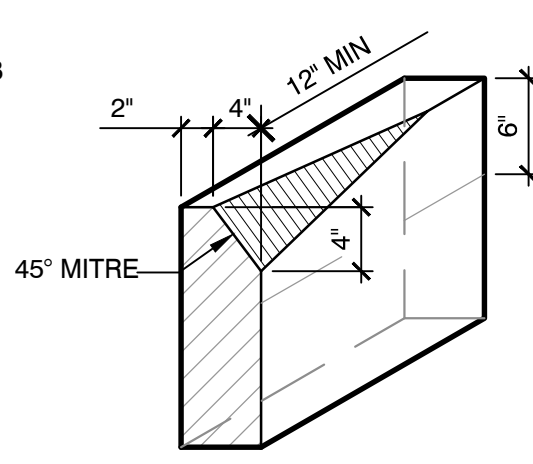
CONDITION 1: FLUSH GRANITE CURB



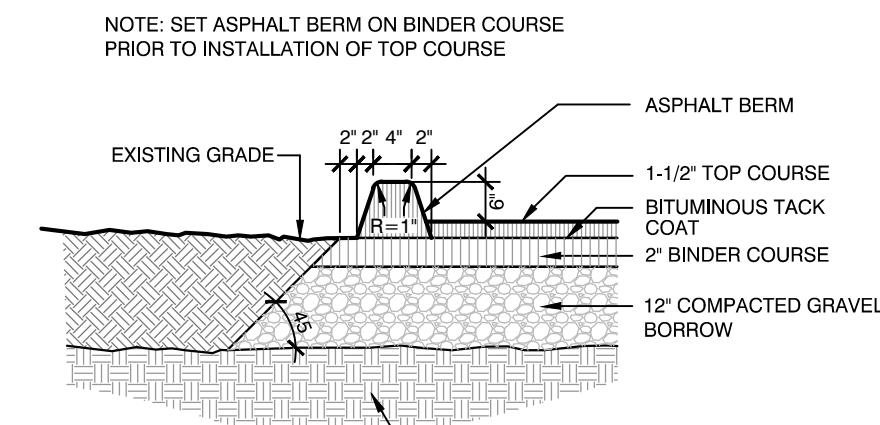
CONDITION 2: VERTICAL GRANITE CURB



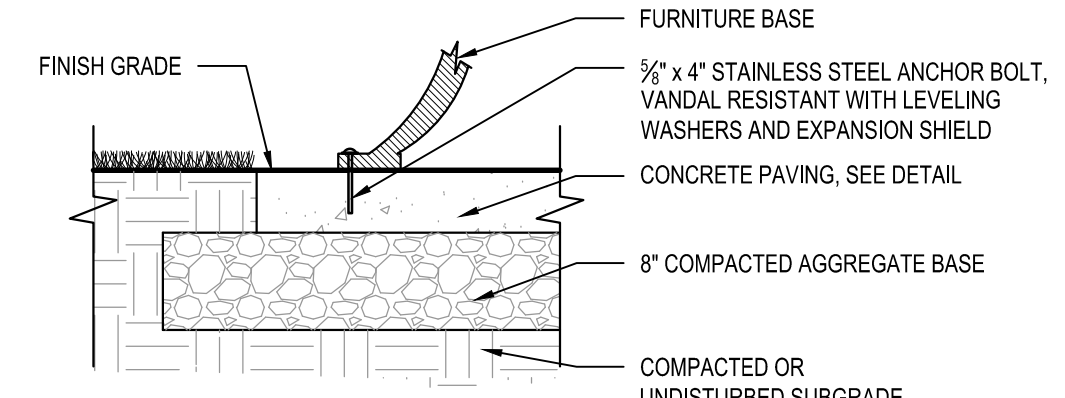
CONDITION 3: TRANSITIONAL GRANITE CURB



- NOTES:
1. CEMENT CONCRETE SHALL EXTEND TO THE BOTTOM OF THE BITUMINOUS CONCRETE.
  2. ANY CLASS OF CEMENT CONCRETE ASSEPTABLE UNDER SECTION M4 OF TEH MASS. "SSHB" MAY BE USED.

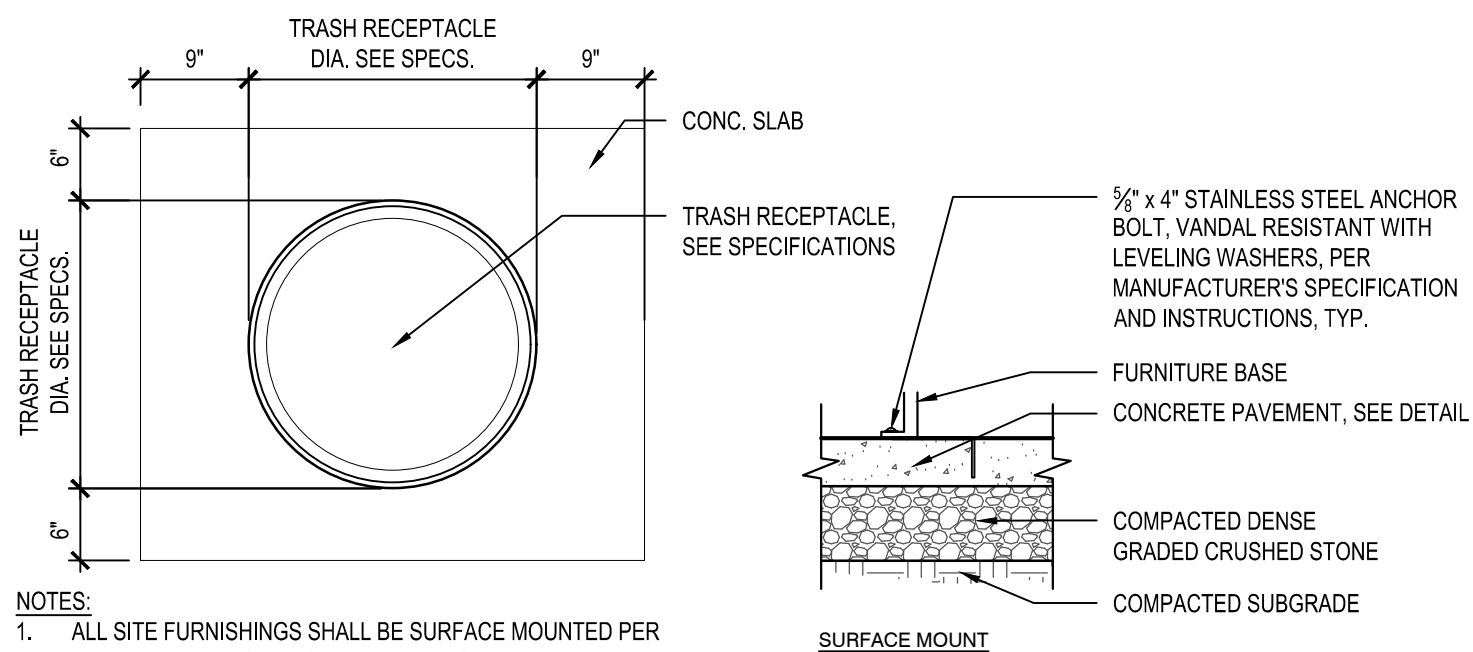


6 ASPHALT BERM  
NOT TO SCALE



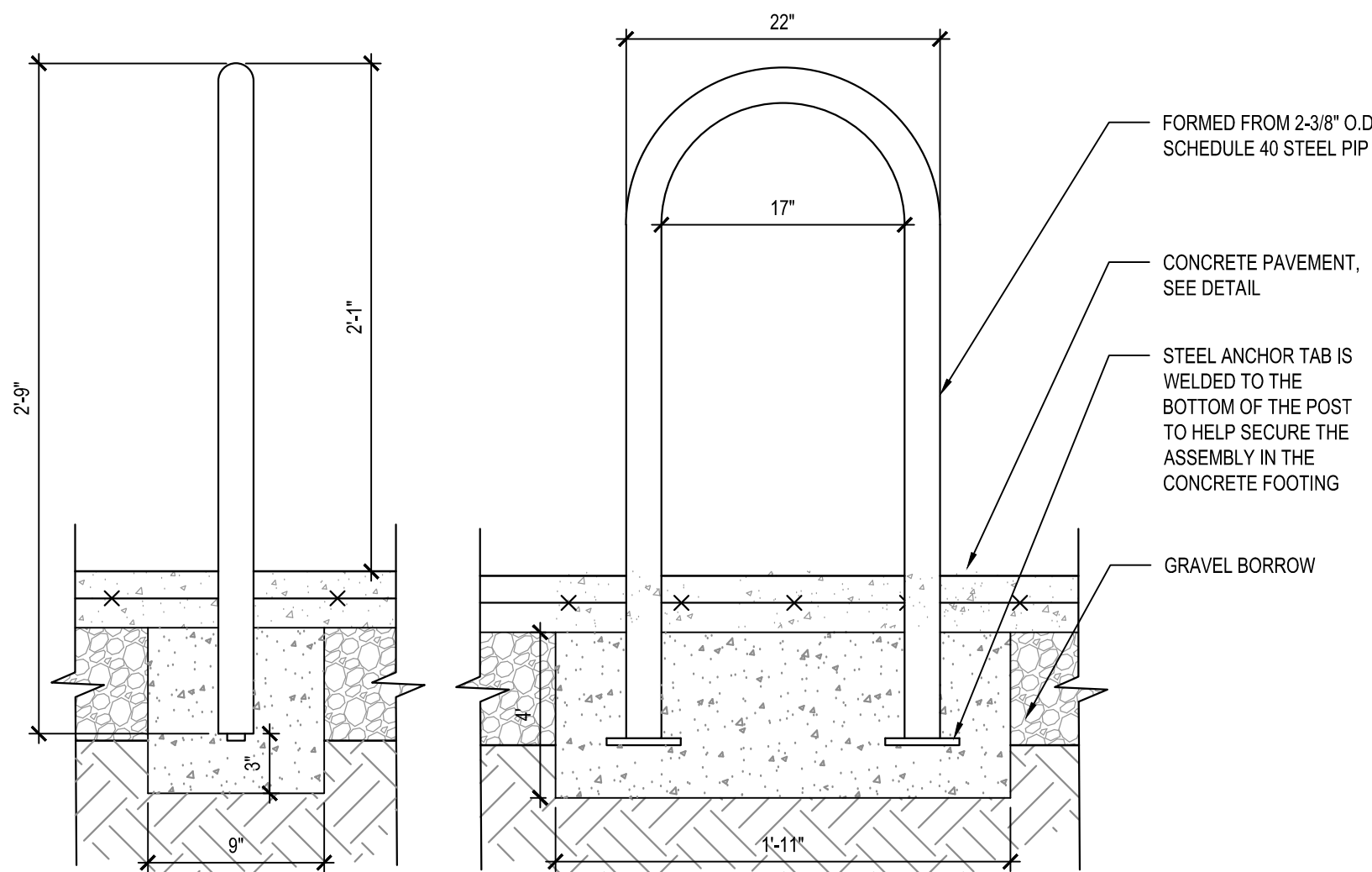
- NOTE:
1. ALL SITE FURNISHINGS SHALL BE SURFACE MOUNTED PER MANUFACTURER'S RECOMMENDATIONS.

7 FURNITURE SURFACE MOUNT, TYP.  
NOT TO SCALE MA-WO-GRE-116

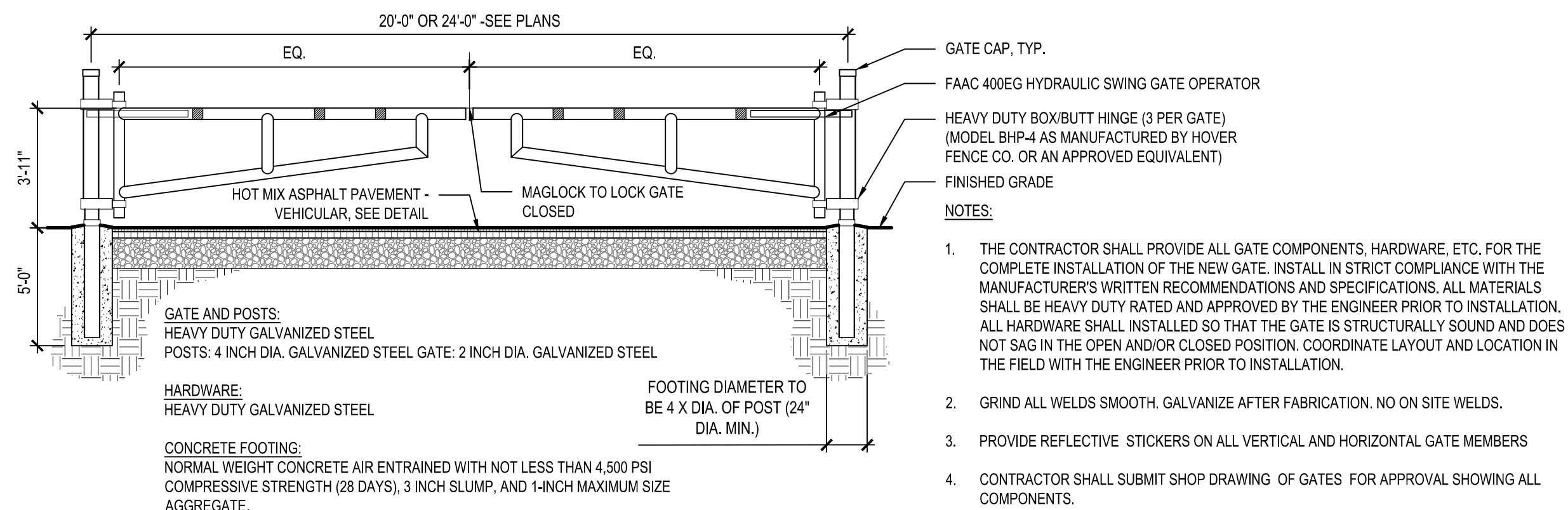


- NOTES:
1. ALL SITE FURNISHINGS SHALL BE SURFACE MOUNTED PER MANUFACTURER'S RECOMMENDATIONS.

8 TRASH RECEPTACLE ON CONCRETE PAD  
NOT TO SCALE



9 BIKE RACK EMBEDDED, TYP.  
NOT TO SCALE MA-WO-GRE-88



10 20' OR 24' WIDE VEHICULAR DOUBLE SWING GATE  
NOT TO SCALE

Project:

CITY OF WORCESTER  
Dept. of Parks, Recreation & Cemetery



GREAT BROOK VALLEY PARKS  
IMPROVEMENTS  
33 Northeast Cutoff, Worcester,  
Massachusetts 01605

Weston & Sampson

427 Main St, Suite 400,  
Worcester, MA 01608  
508.762.1676 800.SAMPSON  
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

Seal:



Issued For:

**PHASE 1  
CONSTRUCTION  
DOCUMENT**

Scale:

Date: MAY 23, 2025  
Drawn By: EM, LY, RB  
Reviewed By: MS, JJ  
Approved By: BK

W&S Project No:

W&S File No:

Drawing Title:

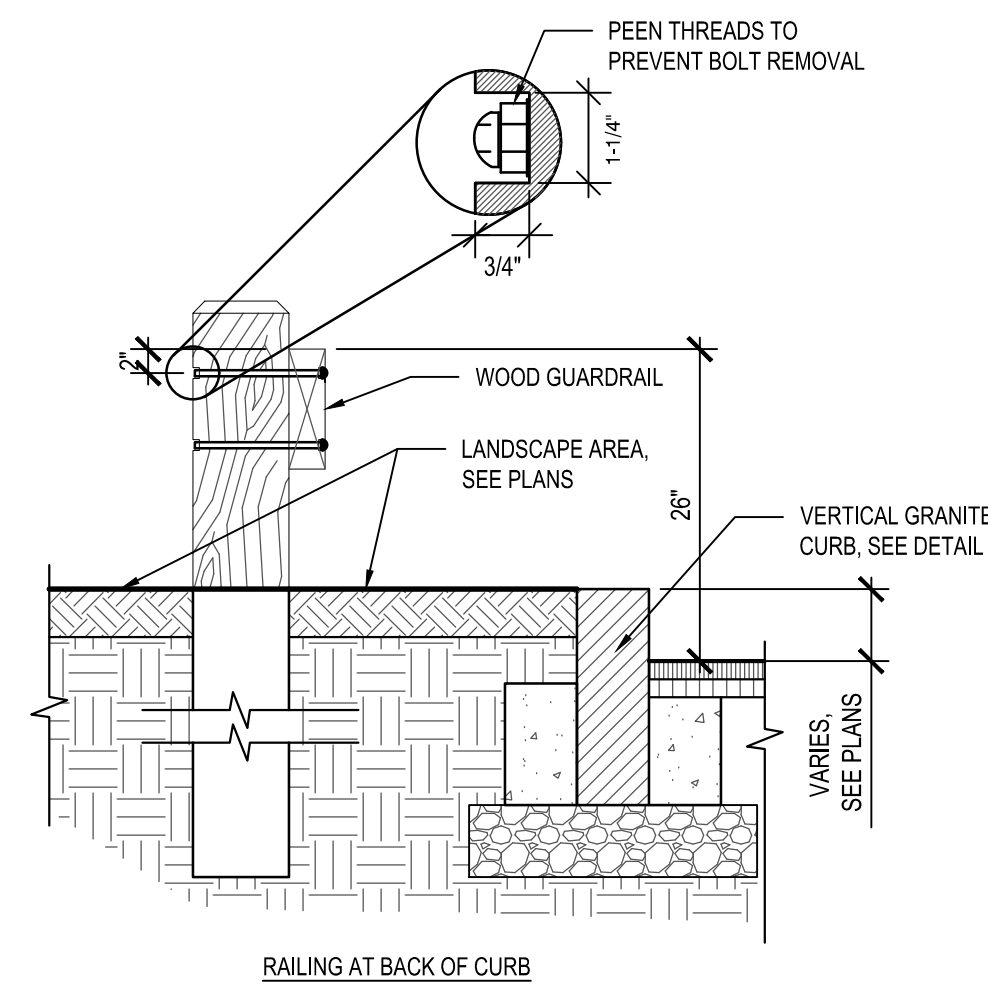
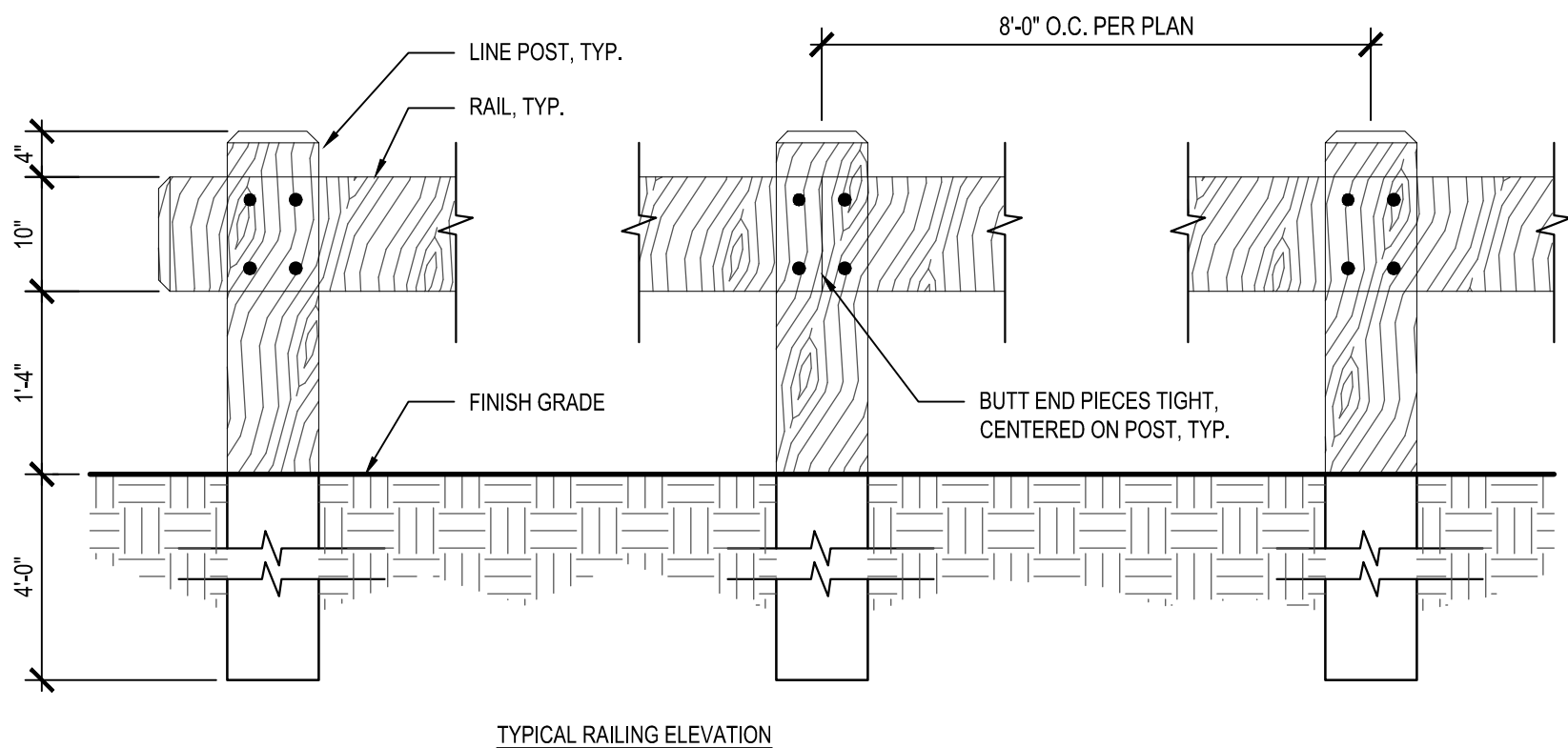
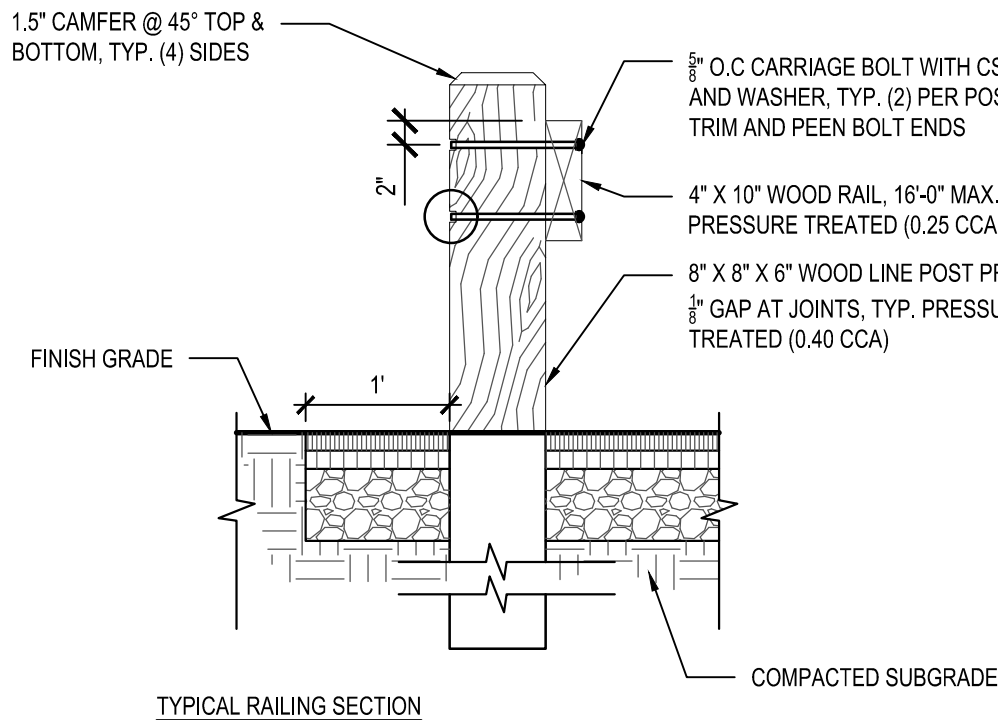
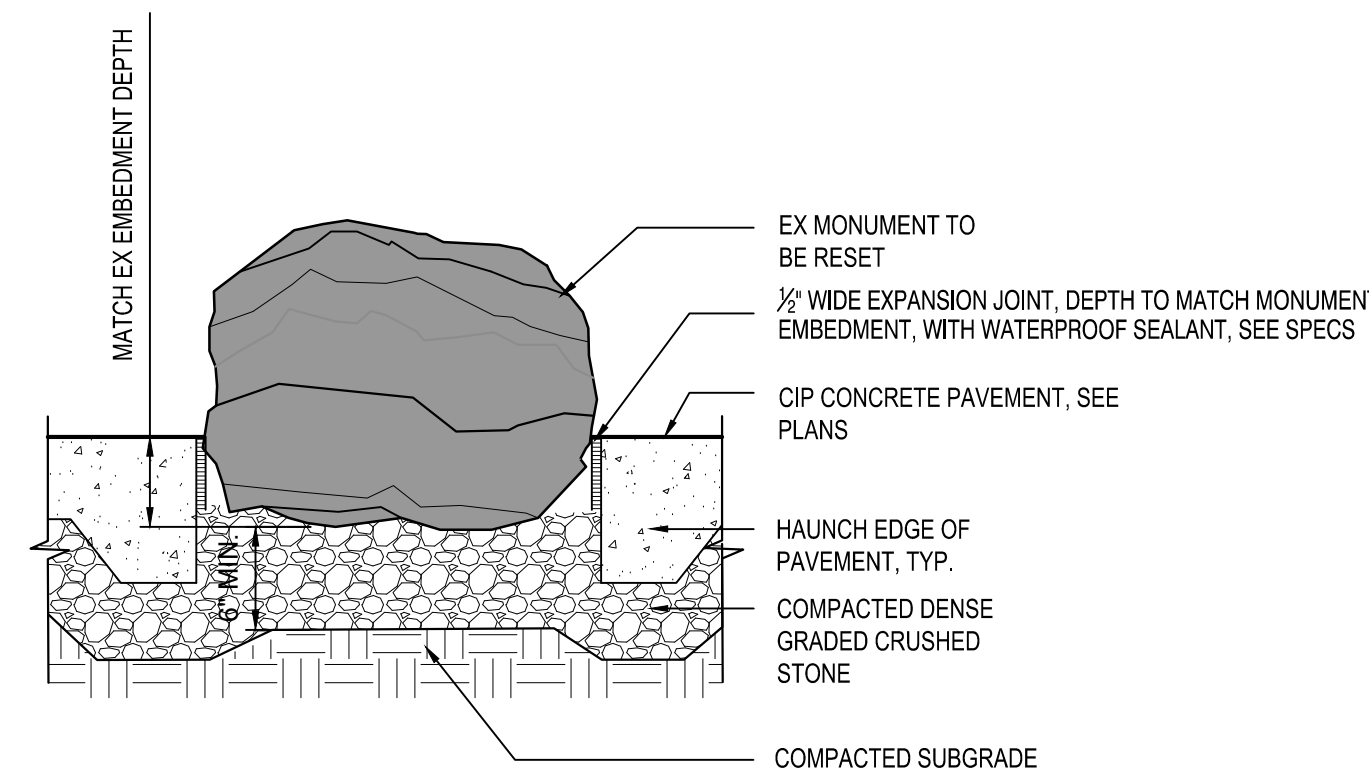
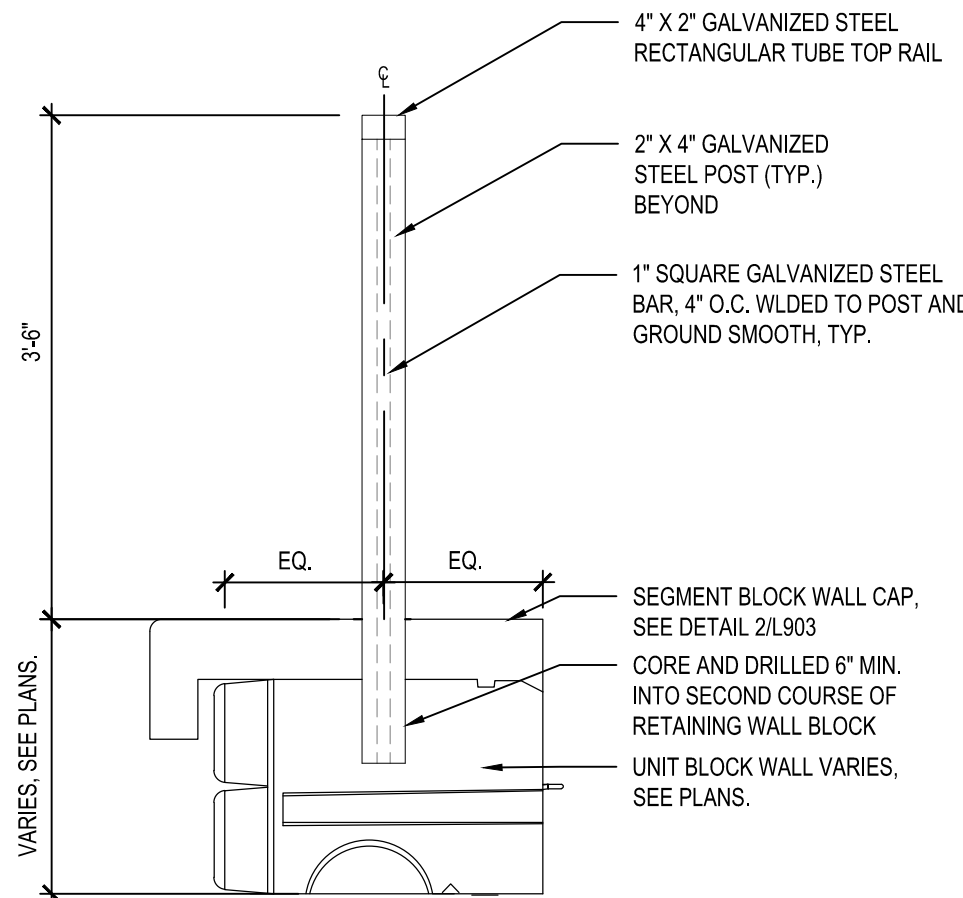
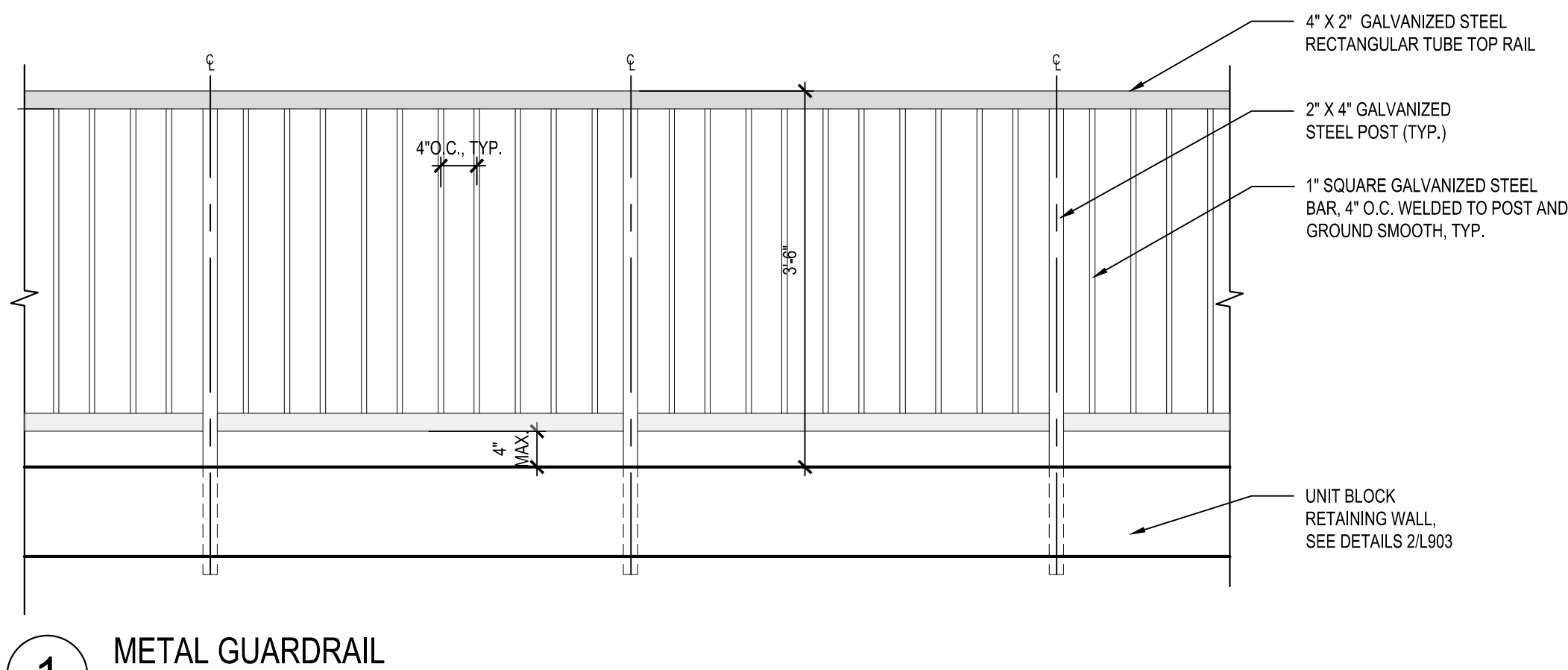
SITE DETAILS

Sheet Number:

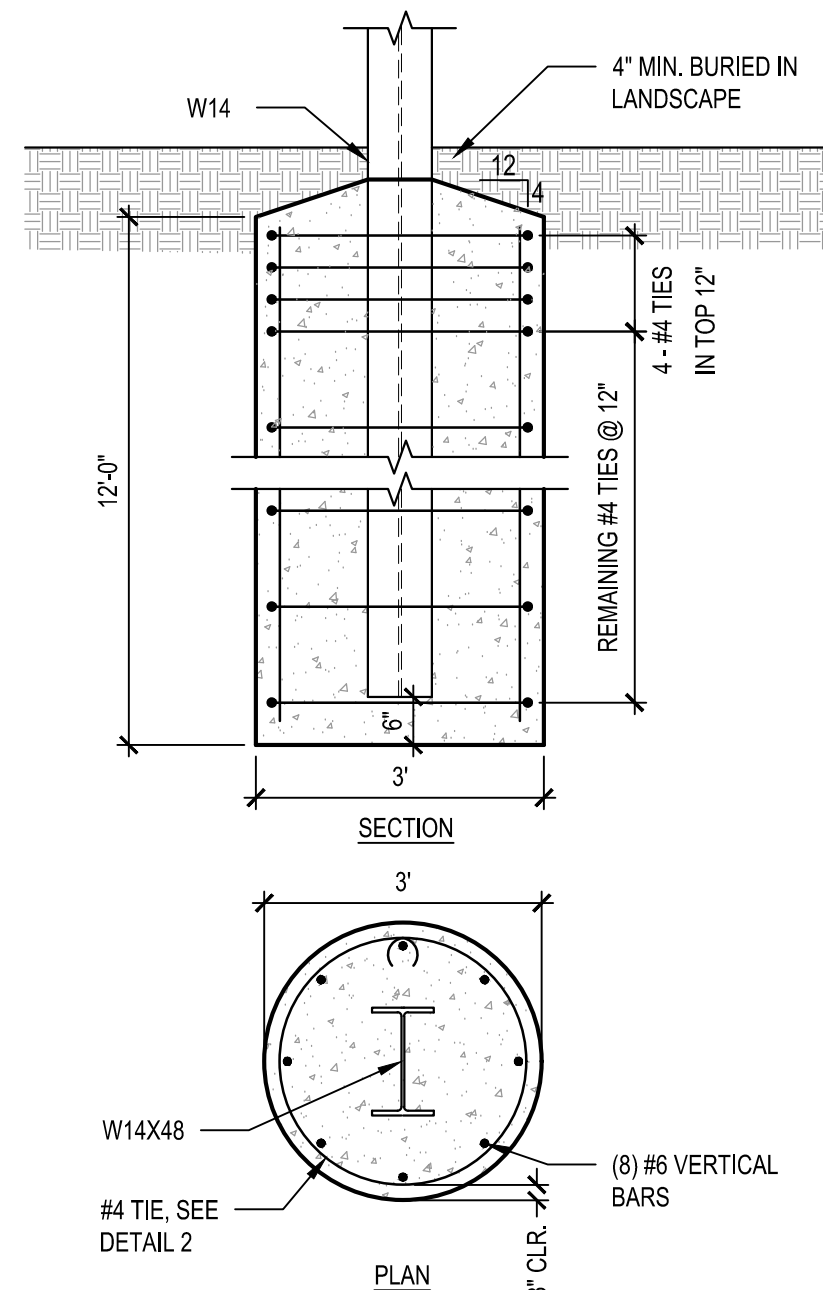
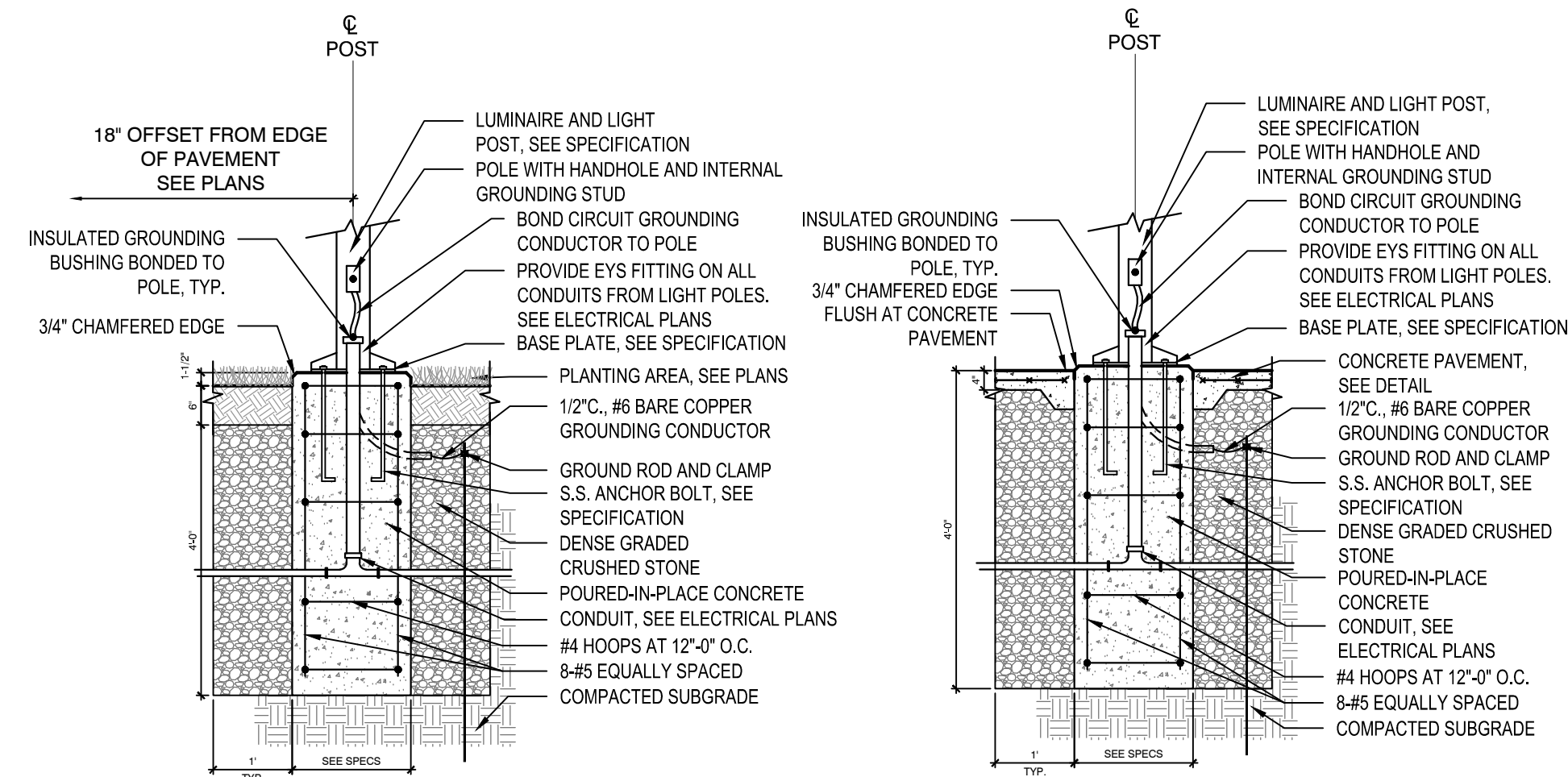
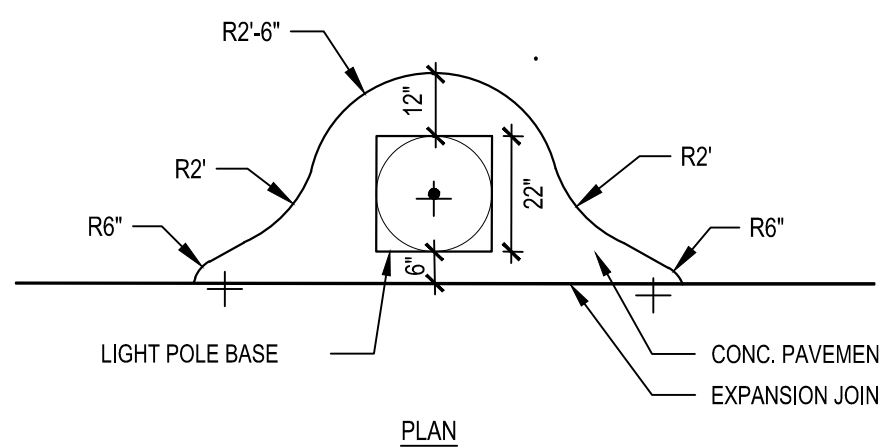
L901

COPYRIGHT 2023 WESTON & SAMPSON



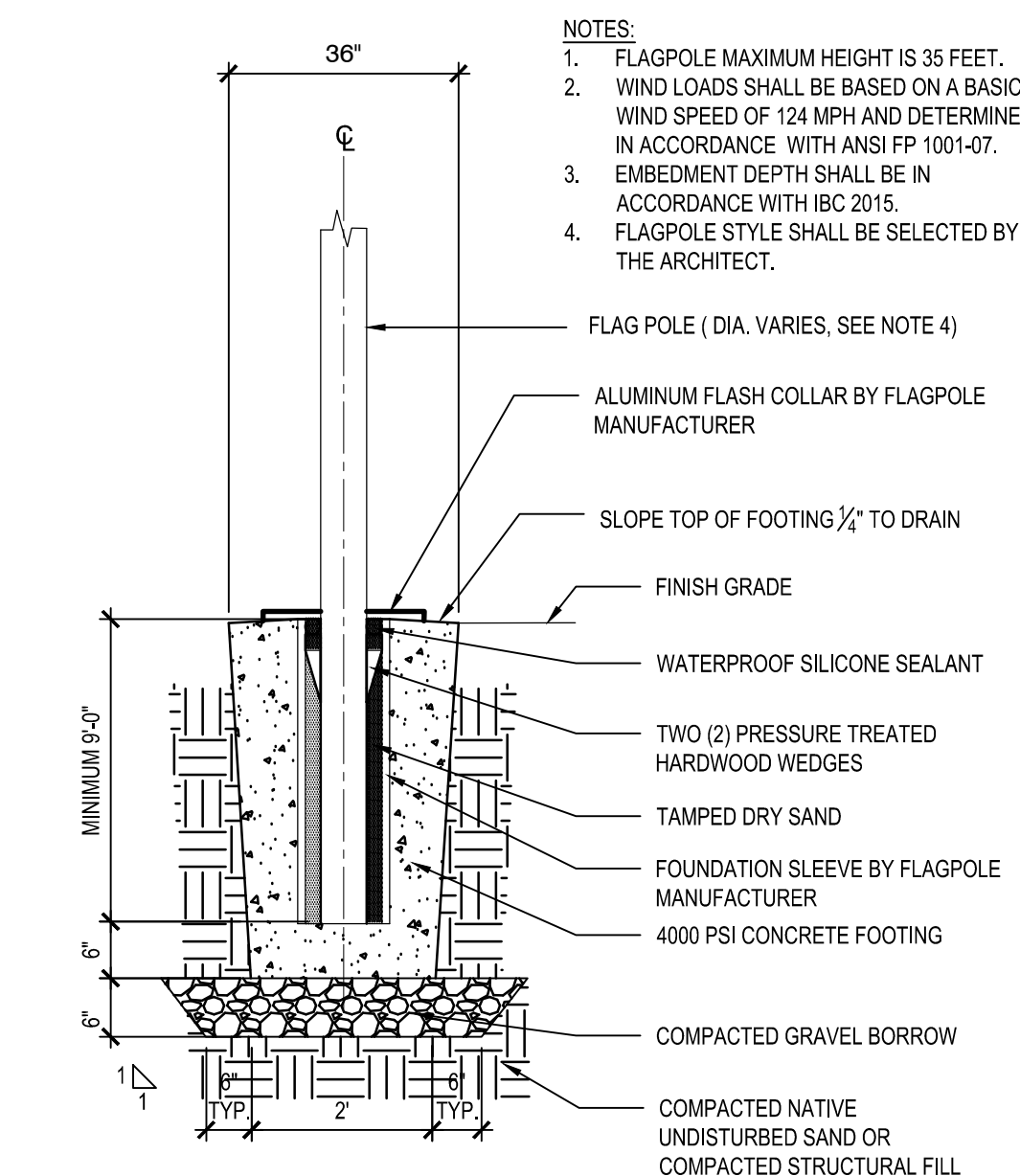
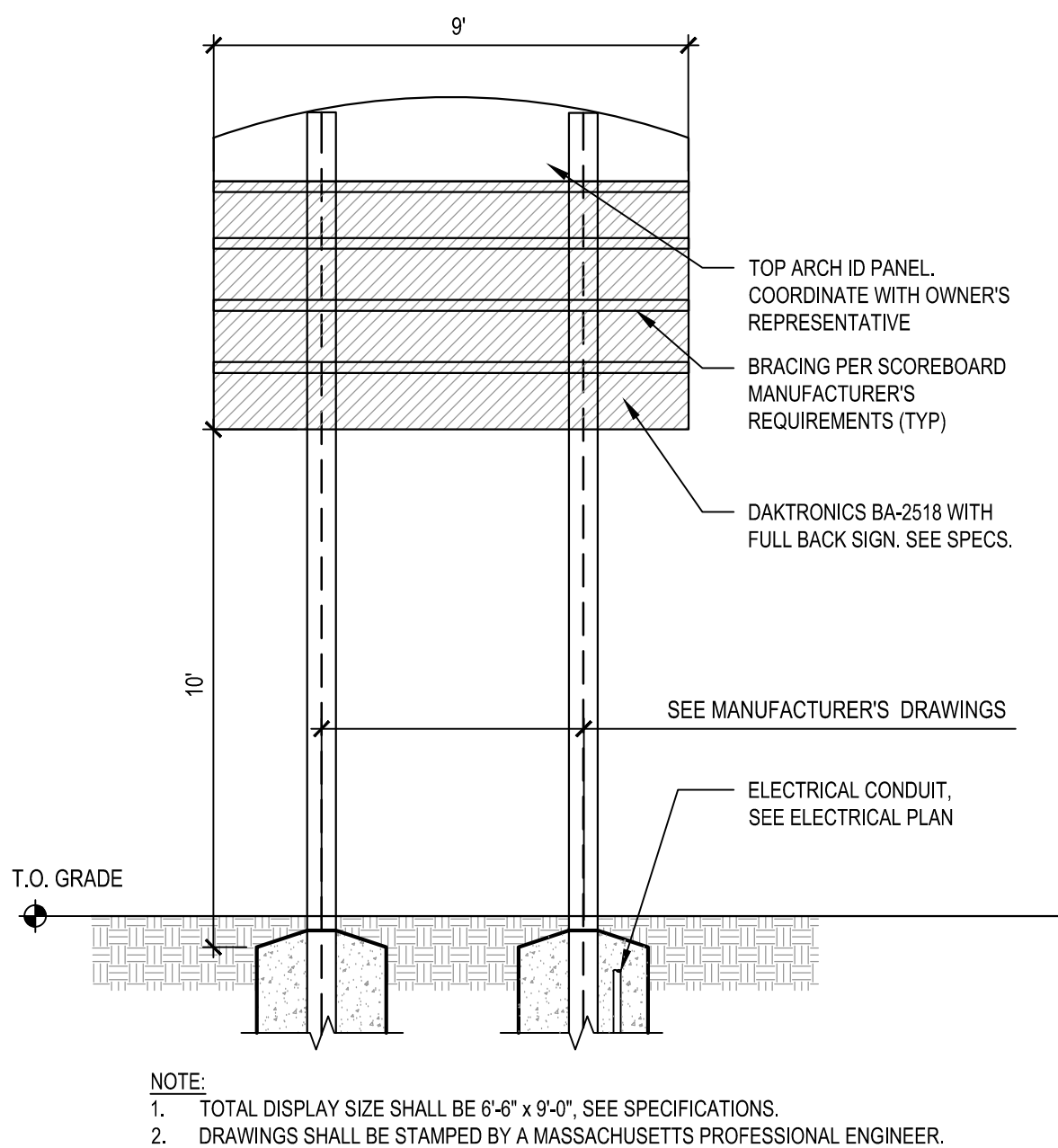


### 3 WOOD GUARDRAIL, TYP.



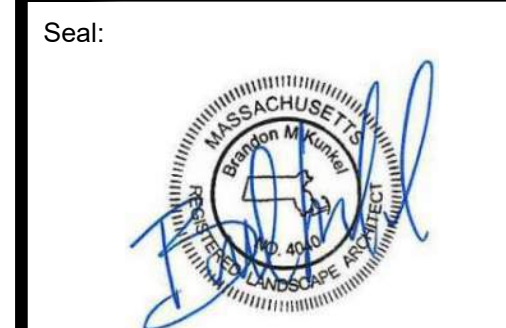
### 4 PEDESTRIAN LIGHTING

### 5 SCOREBOARD & SCOREBOARD FOOTING

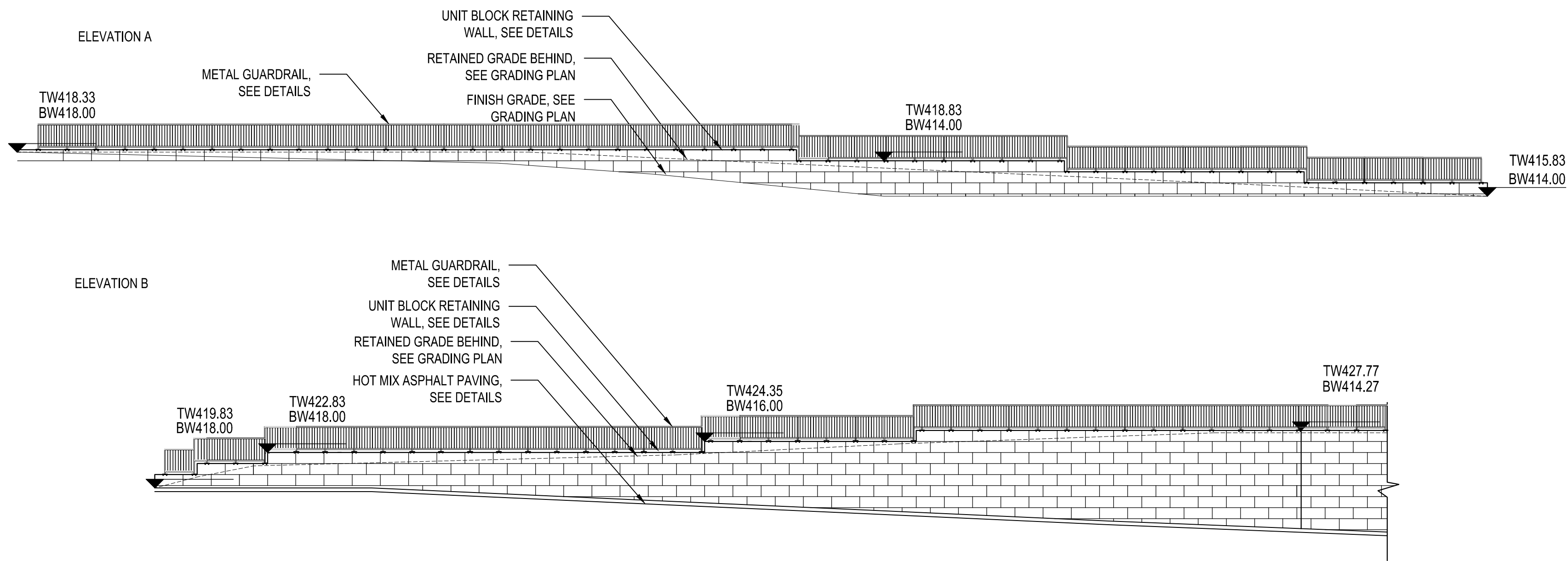


### 6 FLAG POLE FOOTING, TYP.

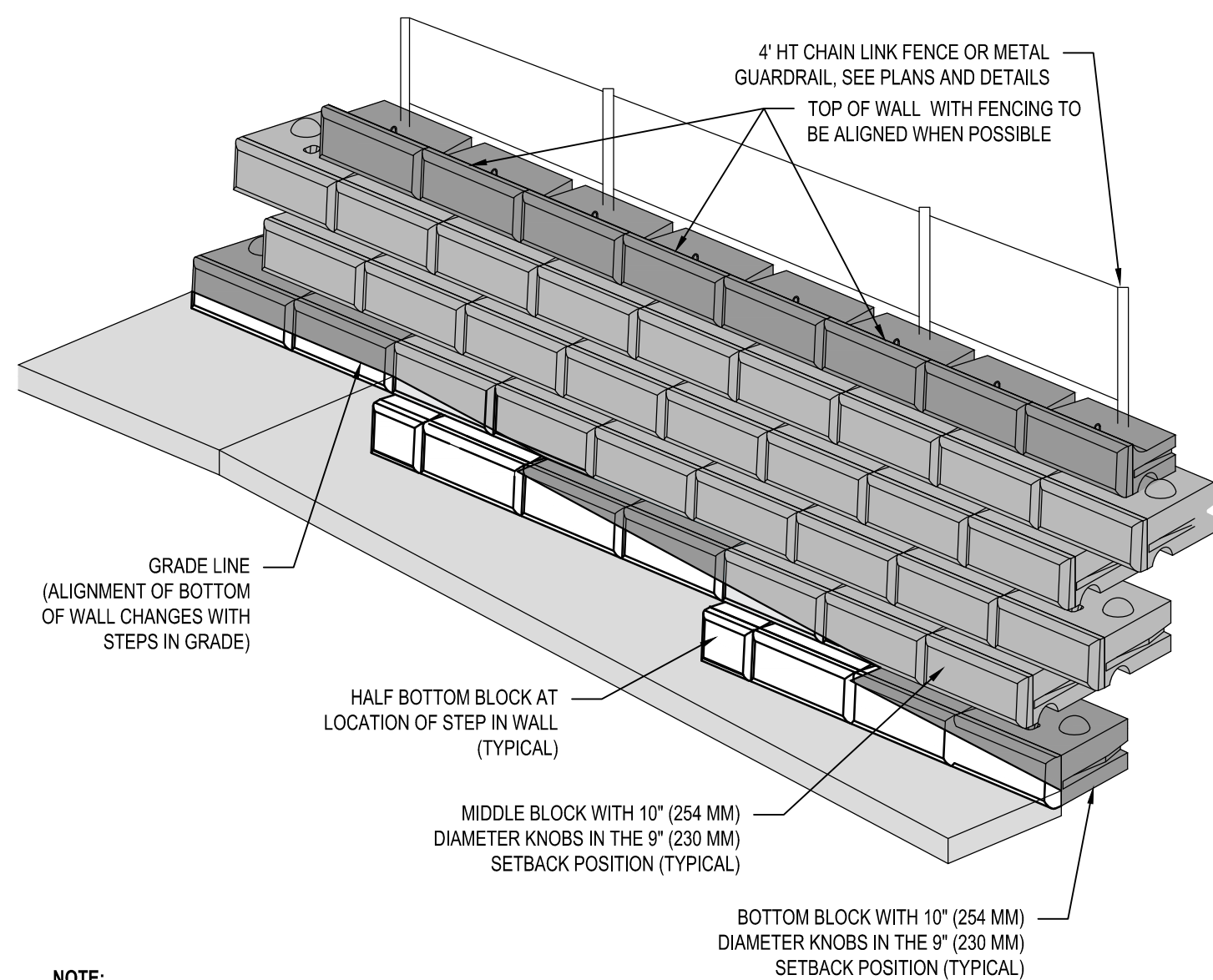
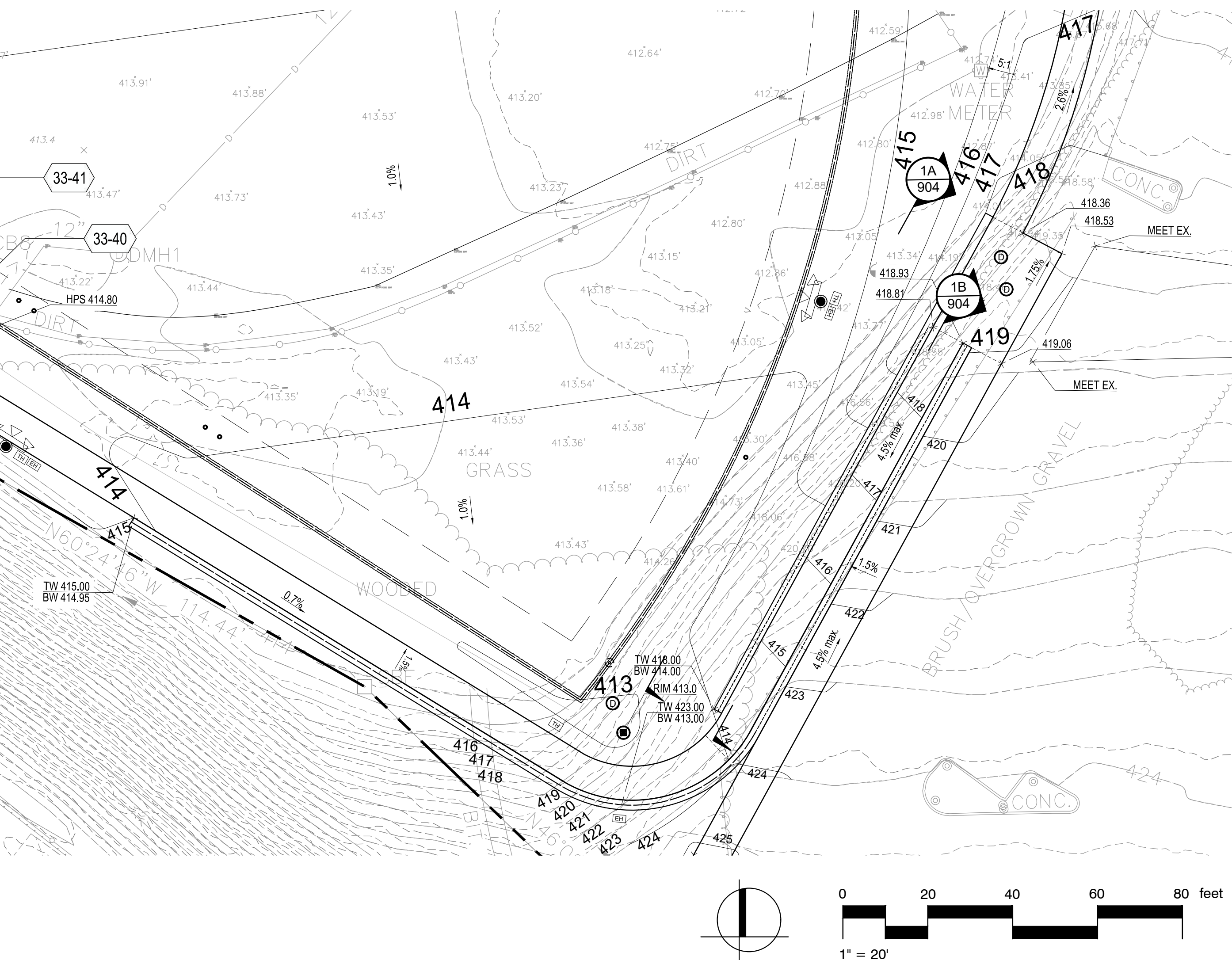
Revisions:		
No.	Date	Description





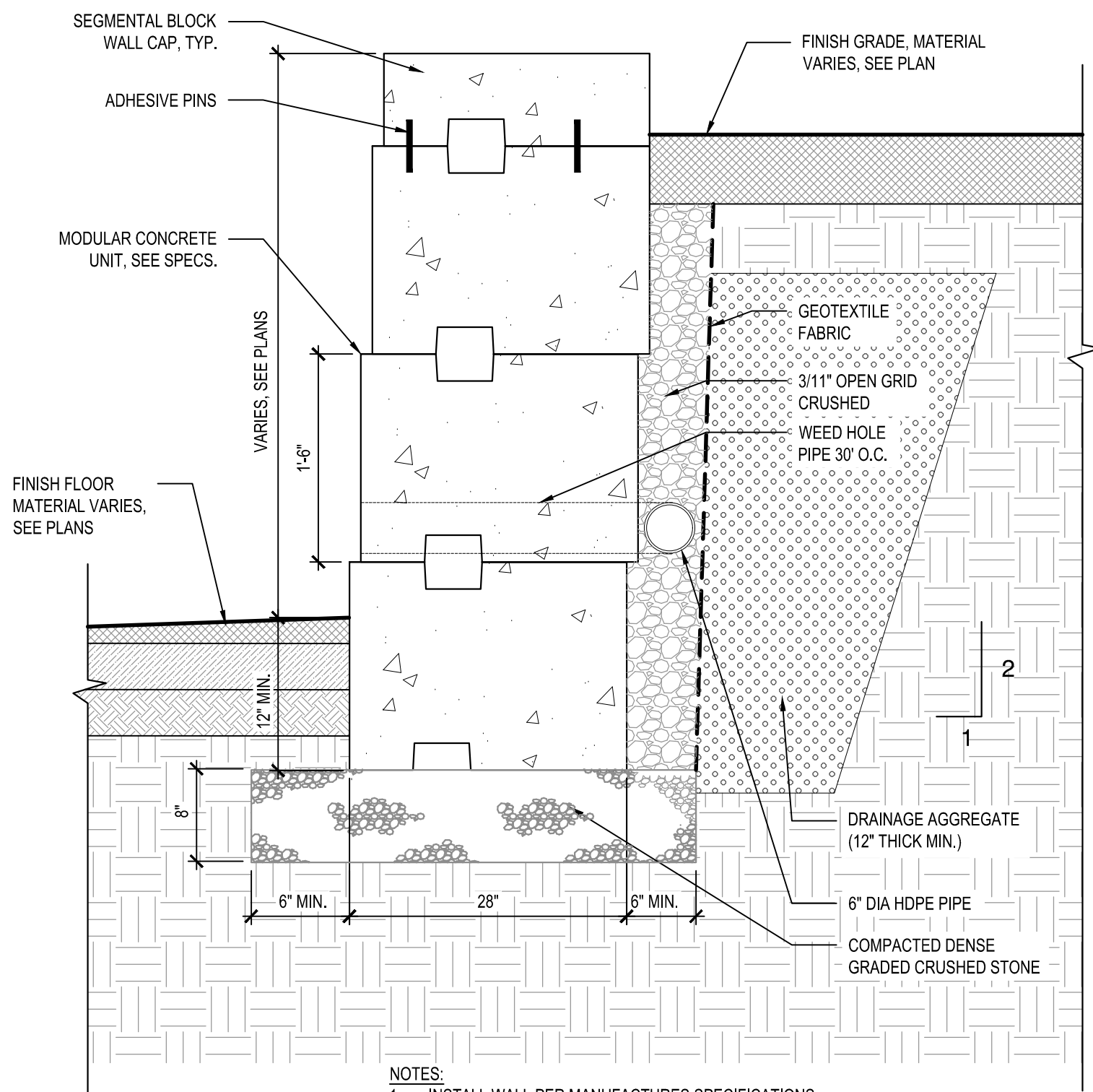


1 UNIT BLOCK WALL ELEVATIONS  
NOT TO SCALE



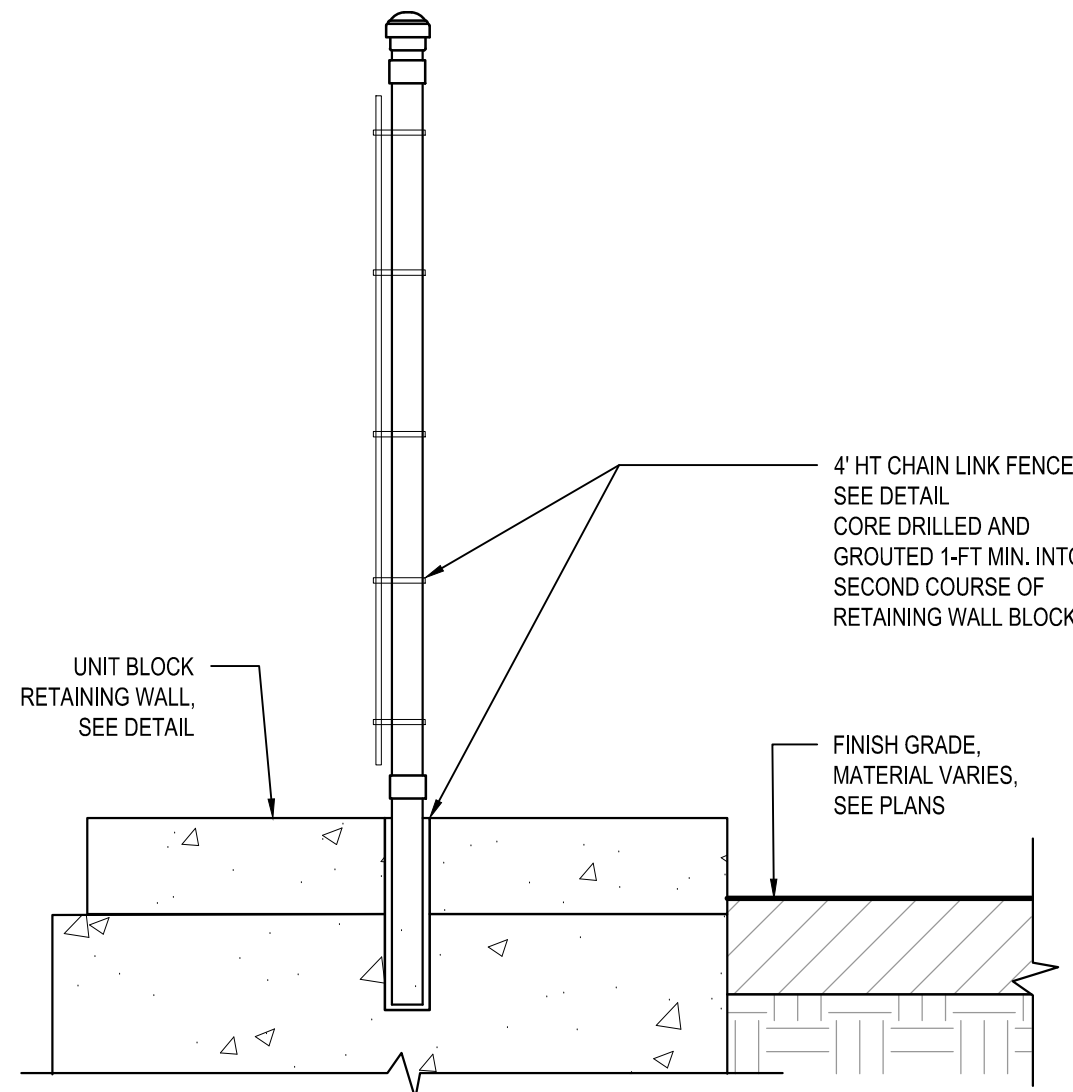
- NOTE:
- THIS DRAWING IS FOR REFERENCE ONLY. DETERMINATION OF THE SUITABILITY AND/OR MANNER OF USE OF ANY DETAILS CONTAINED IN THIS DOCUMENT IS THE SOLE RESPONSIBILITY OF THE DESIGN ENGINEER OF RECORD. FINAL PROJECT DESIGNS, INCLUDING ALL CONSTRUCTION DETAILS, SHALL BE PREPARED BY A LICENSED PROFESSIONAL ENGINEER USING THE ACTUAL CONDITIONS OF THE PROPOSED SITE.
  - GRADING BEHIND UNIT BLOCK WALLS SHALL BE EXECUTED PER GRADING PLANS.

STEPPED 9' SETBACK WALL WITH ALIGNED TOP



- NOTES:
- INSTALL WALL PER MANUFACTURES SPECIFICATIONS.
  - COLOR TO BE APPROVED BY LANDSCAPE ARCHITECT.
  - DRAWINGS SHALL BE STAMPED BY A MASSACHUSETTS PROFESSIONAL ENGINEER.

SECTION



CHAIN LINK FENCE AT UNIT BLOCK RETAINING WALL, TYP.

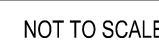
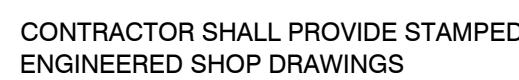
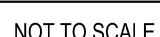
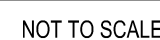
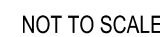
2 UNIT BLOCK RETAINING WALL, TYP.  
NOT TO SCALE

Revisions:		
No.	Date	Description









Consultants:

[illegible]

Seal:



Issued For:

**PHASE 1  
CONSTRUCTION  
DOCUMENT**

Scale:

Date: MAY 23, 2025

Drawn By: EM, LY, RB

Reviewed By: MS.J

Approved By: BK

W30 D-14-1N

WFO File No.:

\_\_\_\_\_

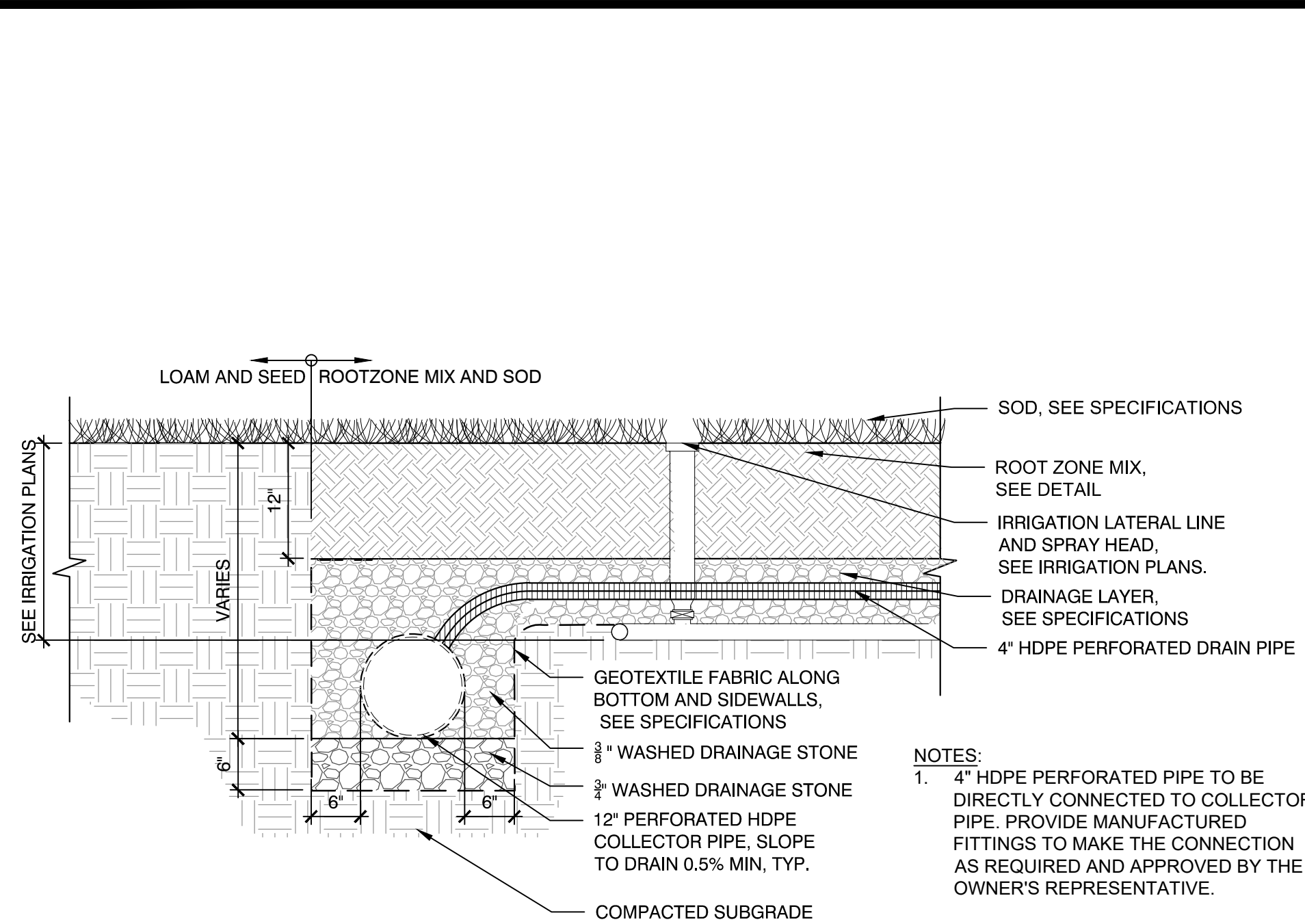
Drawing Title:

## SITE DETAILS

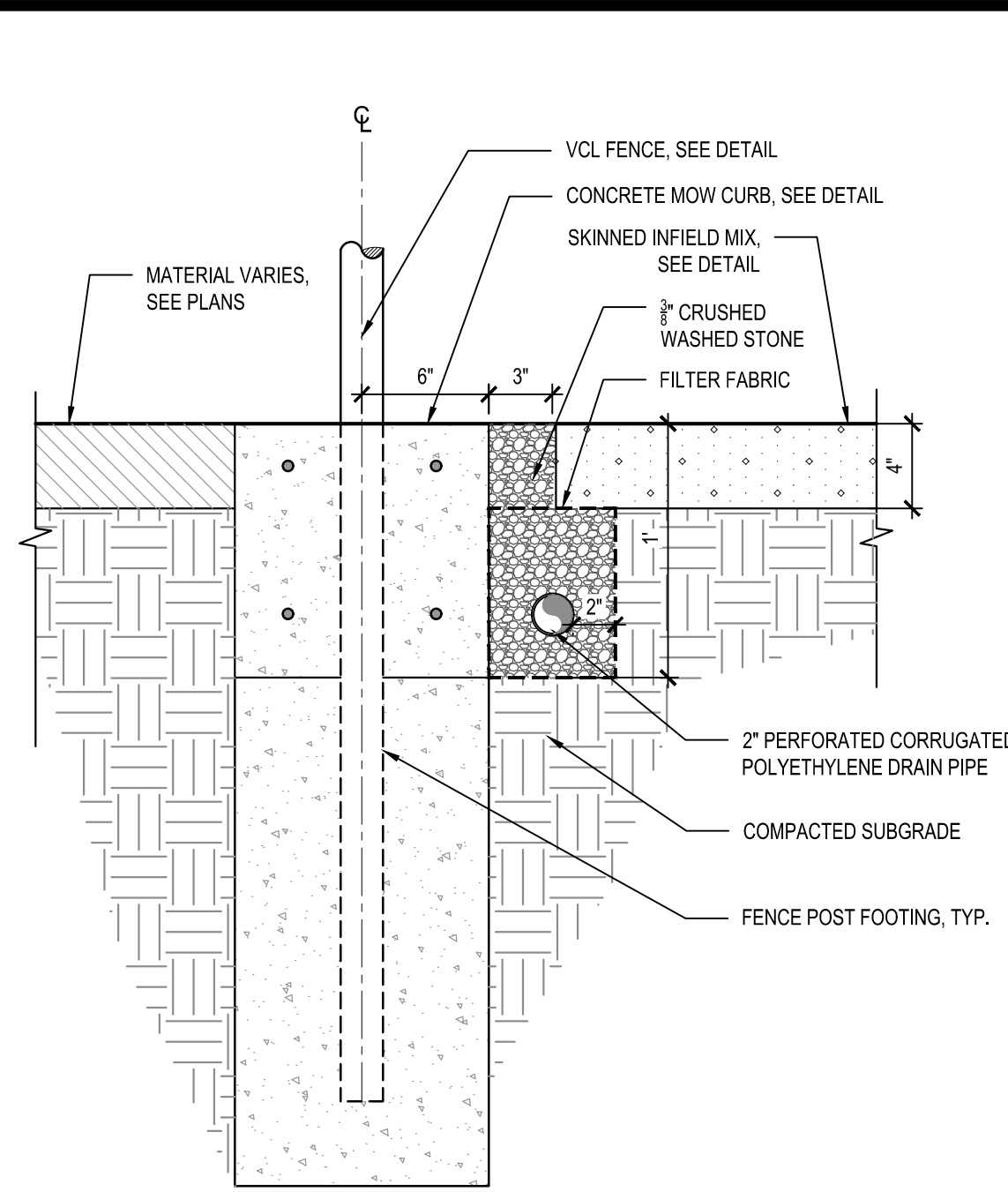
Sheet Number:

# L905

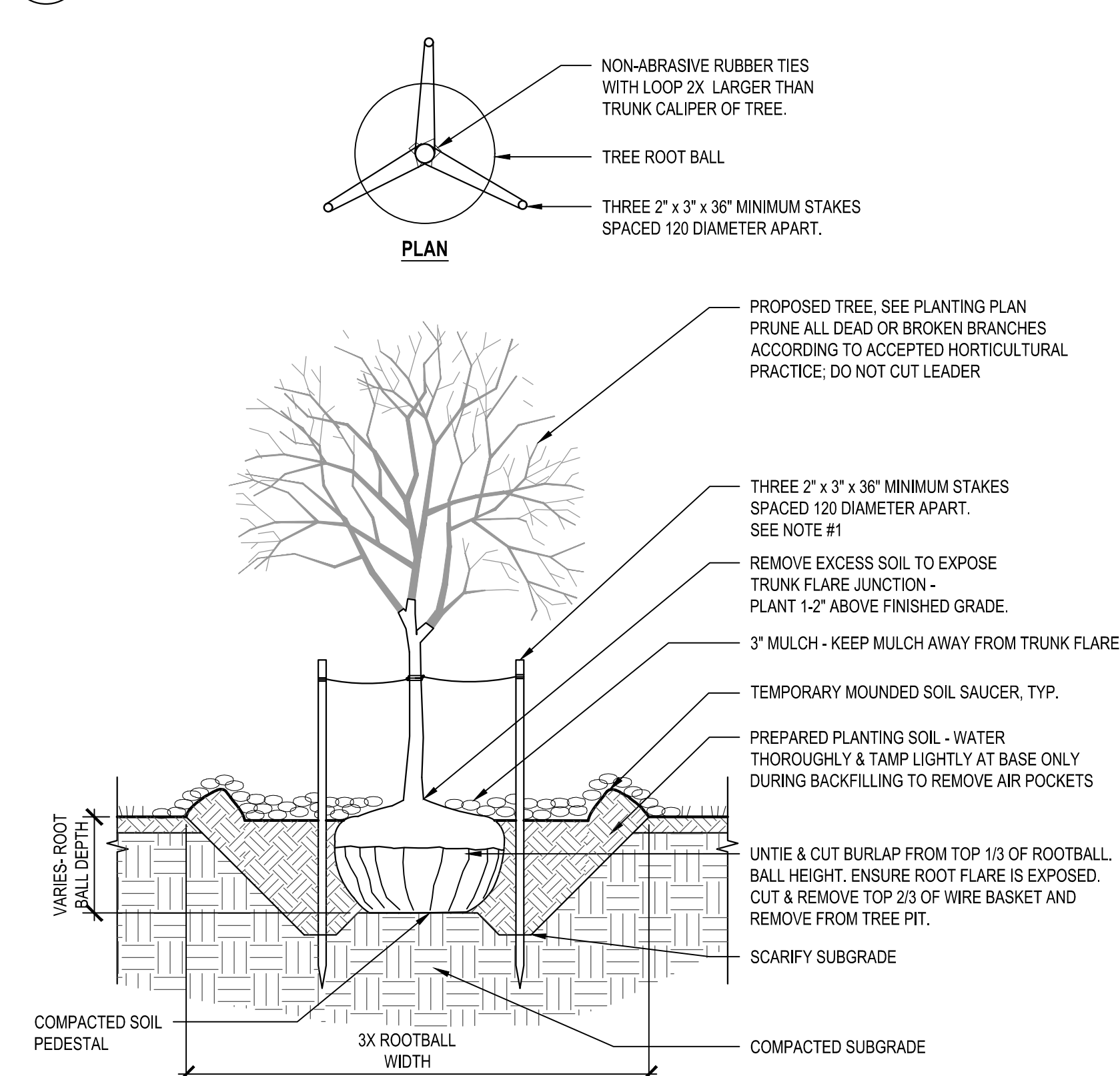




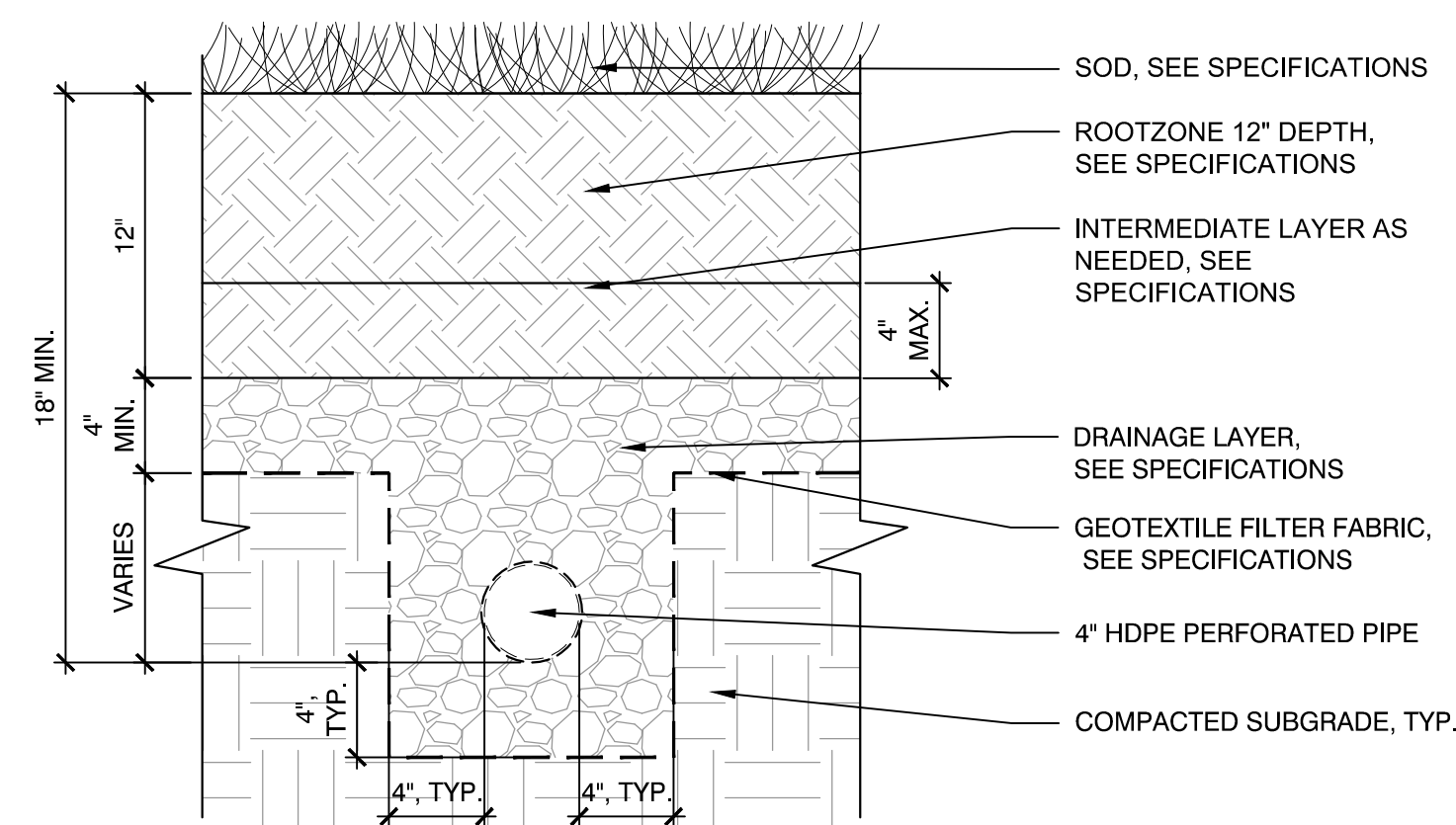
1 12" HDPE COLLECTOR DRAIN LINE  
NOT TO SCALE



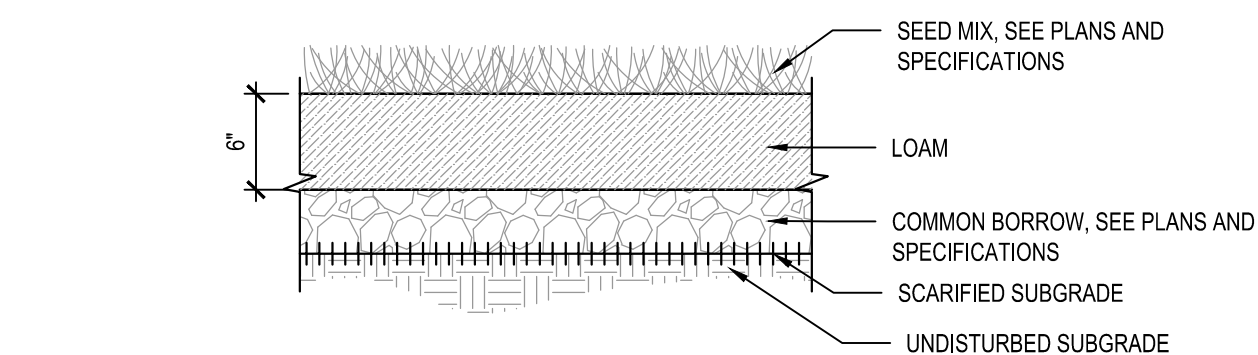
2 FRENCH DRAIN  
NOT TO SCALE



3 DECIDUOUS TREE PLANTING, TYP.  
NOT TO SCALE



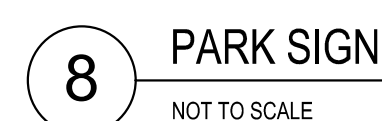
4 FIELD TURF PROFILE WITH UNDERDRAIN, TYP.  
NOT TO SCALE



5 LOAM AND SEED, TYP.  
NOT TO SCALE

Revisions:		
No.	Date	Description







\\land3.local\W&S\Projects\MA\Worcester\Great Brook Valley\GIS\CAD\Sheets\C100\_Drainage\_Plan.dwg

## NOTES

- CONTRACTOR TO REMOVE ANY FILL OR ORGANIC MATERIAL ENCOUNTERED BELOW THE PROPOSED FOOTPRINTS OF INFILTRATION SYSTEM ONE.

## LEGEND

	LIMIT OF WORK
	PROPERTY LINE
	MATCHLINE
	LOCAL BUFFER ZONES (15' NO DISTURB, 30' NO STRUCTURE, AND 50' SEPTIC BUFFER)
	RIVERFRONT AREA (25' OFFSET)
	EXISTING 100-YEAR FLOODPLAIN
	EXISTING 10 YEAR FLOODPLAIN
	100' BUFFER ZONE
	STORMWATER PROTECTION ZONE (100' OFFSET)
	STREAM TOP OF BANK
	PROP. PERFORATED STORM DRAIN
	PROP. STORM DRAIN
	PROP. DRAIN MANHOLE
	PROP. AREA DRAIN
	PROP. AREA DRAIN W/ SOLID COVER
	PROP. CLEANOUT
	PROP. FLARED END SECTION
	PROP. UNDERGROUND INFILTRATION SYSTEM
	PROP. RIP RAP LEVEL SPREADER

TYP.	TYPICAL
EX.	EXISTING
PROP.	PROPOSED
DMH	DRAIN MANHOLE
AD	AREA DRAIN
CO	CLEANOUT
FES	FLARED END SECTION
TD	TRENCH DRAIN
OCS	OUTLET CONTROL STRUCTURE



Project:

CITY OF WORCESTER  
Dept. of Parks, Recreation & Cemetery



GREAT BROOK VALLEY PARKS  
IMPROVEMENTS  
33 Northeast Cutoff, Worcester,  
Massachusetts 01605

Weston & Sampson

427 Main St, Suite 400,  
Worcester, MA 01608  
508.762.1676 800.SAMPSON  
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

Seal:



Issued For:

**PHASE 1  
CONSTRUCTION  
DOCUMENT**

Scale:

Date: MAY 23, 2025

Drawn By: EM, LY, RB

Reviewed By: MS, JJ

Approved By: BK

W&S Project No:

W&S File No:

Drawing Title:

**DRAINAGE PLAN**

Sheet Number:

**C100**

COPYRIGHT 2023 WESTON & SAMPSON



\\vand3.local\W&S\Projects\MA\Worcester\MA\Scoring\Great Brook Valley\Grd-C&S\SHEETS\C100\_Drainage\_Plan.dwg

DRAINAGE STRUCTURE TABLE				
NAME	RIM	INVERT IN	INVERT OUT	DETAILS
AD-5	418.70	I=415.70 (CO-4)	I=415.70 (AD-8)	30" AREA DRAIN (SOLID COVER)
AD-6	413.20	I=411.00 (CO-2) I=410.96 (AD-7)	I=410.70 (AD-8)	30" AREA DRAIN (SOLID COVER)
AD-7	413.00		I=411.00 (AD-6)	30" AREA DRAIN
AD-8	418.57	I=410.00 (AD-6) I=415.66 (AD-5)	I=410.00 (DMH-1)	30" AREA DRAIN (SOLID COVER)
AD-9	414.70		I=410.09 (DMH-2)	30" AREA DRAIN
AD-10	412.75		I=409.50 (DMH-2)	30" AREA DRAIN
CO-1	414.70		I=412.70 (DMH-3)	CLEANOUT
CO-2	414.70	I=412.70 (TD-1)	I=412.70 (AD-6)	CLEANOUT
CO-4	424.70		I=421.22 (AD-5)	CLEANOUT
DMH-1	419.19	I=409.42 (AD-8)	I=409.42 (OCS-2)	DRAIN MANHOLE
DMH-2	414.70	I=410.00 (AD-9) I=409.27 (AD-10)	I=409.27 (DMH-3)	DRAIN MANHOLE
DMH-3	414.70	I=410.98 (CO-1) I=408.99 (DMH-2)	I=408.99 (FES-1)	DRAIN MANHOLE
FES-1	409.59	I=408.43 (DMH-3)		FLARED END SECTION
FES-4	410.59	I=408.76 (OCS-2)		FLARED END SECTION
IS-1 (IN-OUT)	410.64	I=408.92 (OCS-2)		IS-1 INLET
OCS-2	417.63	I=409.17 (DMH-1)	I=409.17 (FES-4) I=408.92 (IS-1 (IN-OUT))	5' ID WEIR EL.=413.00 2"H X 8"W ORIFICE EL.=410.00
TD-1	414.44		I=412.80 (CO-2)	TRENCH DRAIN

PIPE TABLE			
PIPE	SIZE & TYPE	LENGTH	SLOPE
P-1	12" HDPE	137-LF	0.039
P-2	12" HDPE	4-LF	0.005
P-3	12" HDPE	211-LF	0.008
P-4	12" HDPE	4-LF	0.005
P-5	15" HDPE	136-LF	0.005
P-6	15" HDPE	111-LF	0.005
P-7	18" HDPE	42-LF	0.005
P-8	18" HDPE	83-LF	0.005
P-9	12" HDPE	214-LF	0.008
P-10	15" HDPE	15-LF	0.005
P-11	18" HDPE	52-LF	0.005
P-12	24" HDPE	110-LF	0.005
P-13	18" HDPE	41-LF	0.005
P-14	18" HDPE	4-LF	0.000
P-20	6" HDPE	11-LF	0.004
P-25	12" HDPE	16-LF	0.005

Project:

CITY OF WORCESTER  
Dept. of Parks, Recreation & Cemetery



GREAT BROOK VALLEY PARKS  
IMPROVEMENTS  
33 Northeast Cutoff, Worcester,  
Massachusetts 01605



427 Main St, Suite 400,  
Worcester, MA 01608  
508.762.1676 800.SAMPSON  
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

Seal:



Issued For:

**PHASE 1  
CONSTRUCTION  
DOCUMENT**

Scale:

Date: MAY 23, 2025  
Drawn By: EM, LY, RB  
Reviewed By: MS, JJ  
Approved By: BK

W&S Project No:

W&S File No:

Drawing Title:

DRAINAGE SCHEDULE

Sheet Number:

C101



\\wds03.local\W&S\Projects\MA\Worcester\Great Brook Valley\Great Brook Valley\GIS\CAD\Drawings\100 Drainage Plan - Bid Alt.dwg

## NOTES

1. CONTRACTOR TO REMOVE ANY FILL OR ORGANIC MATERIAL ENCOUNTERED BELOW THE PROPOSED FOOTPRINTS OF INFILTRATION SYSTEM ONE.

## LEGEND

	LIMIT OF WORK
	PROPERTY LINE
	MATCHLINE
	LOCAL BUFFER ZONES (15' NO DISTURB, 30' NO STRUCTURE, AND 50' SEPTIC BUFFER)
	RIVERFRONT AREA (25' OFFSET)
	EXISTING 100 YEAR FLOODPLAIN
	EXISTING 10 YEAR FLOODPLAIN
	100' BUFFER ZONE
	STORMWATER PROTECTION ZONE (100' OFFSET)
	STREAM TOP OF BANK
	PROP. PERFORATED STORM DRAIN
	PROP. STORM DRAIN
	PROP. WATER LINE
	PROP. DRAIN MANHOLE
	PROP. AREA DRAIN
	PROP. AREA DRAIN W/ SOLID COVER
	PROP. CLEANOUT
	PROP. FLARED END SECTION
	PROP. UNDERGROUND INFILTRATION SYSTEM
	PROP. RIP RAP LEVEL SPREADER
TYP.	TYPICAL
EX.	EXISTING
PROP.	PROPOSED
DMH	DRAIN MANHOLE
AD	AREA DRAIN
CO	CLEANOUT
FES	FLARED END SECTION
TD	TRENCH DRAIN
OCS	OUTLET CONTROL STRUCTURE

Project:

CITY OF WORCESTER  
Dept. of Parks, Recreation & Cemetery



GREAT BROOK VALLEY PARKS  
IMPROVEMENTS  
33 Northeast Cutoff, Worcester,  
Massachusetts 01605

Weston & Sampson

427 Main St. Suite 400,  
Worcester, MA 01608  
508.762.1676 800.SAMPSON  
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

Seal:



Issued For:

**PHASE 1  
CONSTRUCTION  
DOCUMENT**

Scale:

Date: MAY 23, 2025

Drawn By: EM, LY, RB

Reviewed By: MS, JJ

Approved By: BK

W&S Project No:

W&S File No:

Drawing Title:

**DRAINAGE PLAN - BID ALT  
1**

Sheet Number:

**C102**

COPYRIGHT 2023 WESTON & SAMPSON



\\land3.local\W&S\Projects\MA\Worcester, MA\Locom-2\Great Brook Valley\Great Brook Valley\Grd-C&S\SHEETS\C100\_Drainage\_Plan -- Bid.dwg

DRAINAGE STRUCTURE TABLE				
NAME	RIM	INVERT IN	INVERT OUT	DETAILS
6-IN PERF. PIPE	444.57		I=444.00 (AD-1)	6-IN PERF. PIPE
AD-1	441.55	I=439.55 (6-IN PERF. PIPE)	I=439.55 (AD-2)	30" AREA DRAIN
AD-2	436.50	I=434.45 (AD-1)	I=434.45 (CO-3)	30" AREA DRAIN
AD-3	431.66	I=429.66 (CO-3)	I=429.66 (AD-4)	30" AREA DRAIN
AD-4	425.50	I=423.50 (AD-3)	I=422.43 (AD-5)	30" AREA DRAIN
AD-5	418.70	I=415.70 (AD-4)	I=415.59 (AD-8)	30" AREA DRAIN (SOLID COVER)
AD-6	413.20	I=411.00 (CO-2) I=410.98 (AD-7)	I=410.75 (AD-8)	30" AREA DRAIN (SOLID COVER)
AD-7	413.00		I=411.00 (AD-6)	30" AREA DRAIN
AD-8	418.57	I=410.06 (AD-6) I=415.57 (AD-5)	I=410.06 (DMH-1)	30" AREA DRAIN (SOLID COVER)
AD-9	414.70		I=410.09 (DMH-2)	30" AREA DRAIN
AD-10	411.00		I=408.97 (IS-1 (IN))	30" AREA DRAIN
AD-11	411.00		I=408.84 (DMH-5)	30" AREA DRAIN
CO-1	414.70		I=412.70 (DMH-3)	CLEANOUT
CO-2	414.70		I=412.70 (AD-6)	CLEANOUT
CO-3	436.40	I=434.40 (AD-2)	I=434.40 (AD-3)	CLEANOUT
DMH-1	419.19	I=409.50 (AD-8)	I=409.50 ()	DRAIN MANHOLE

DRAINAGE STRUCTURE TABLE				
NAME	RIM	INVERT IN	INVERT OUT	DETAILS
DMH-2	414.70	I=410.00 (AD-9)	I=409.27 (DMH-3)	DRAIN MANHOLE
DMH-3	414.70	I=410.98 (CO-1) I=408.99 (DMH-2)	I=408.99 (FES-1)	DRAIN MANHOLE
DMH-4	413.83	I=410.22 (STC-450I)	I=410.12 (FES-3)	DRAIN MANHOLE
DMH-5	413.19	I=408.66 (AD-11)	I=408.66 (IS-1 (IN-2))	DRAIN MANHOLE
FES-1	409.59	I=408.43 (DMH-3)		FLARED END SECTION
FES-2	410.38	I=409.22 (OCS-1)		FLARED END SECTION
FES-3	408.54	I=407.38 (DMH-4)		FLARED END SECTION
FES-4	410.61	I=408.86 ()		FLARED END SECTION
IS-1 (IN-2)	409.79	I=408.63 (DMH-5)		IS-1 INLET
IS-1 (IN)	409.77	I=408.83 (AD-10)		INSERTA TEE
IS-1 (OUT)	410.86		I=409.70 (OCS-1)	IS-1 OUTLET
OCS-1	413.08	I=409.62 (IS-1 (OUT))	I=409.55 (FES-2)	WEIR EL.=411.00 6"X24" ORIFICE EL.=409.65
STC-450I	413.56		I=410.46 (DMH-4)	STORMCEPTOR STC-450I

PIPE TABLE			
PIPE	SIZE & TYPE	LENGTH	SLOPE
P-1	12" HDPE	168-LF	0.039
P-2	12" HDPE	4-LF	0.002
P-3	12" HDPE	211-LF	0.008
P-4	12" HDPE	4-LF	0.002
P-5	15" HDPE	136-LF	0.005
P-6	15" HDPE	111-LF	0.005
P-7	18" HDPE	48-LF	0.005
P-8	18" HDPE	81-LF	0.005
P-9	12" HDPE	214-LF	0.008
P-10	15" HDPE	15-LF	0.005

PIPE TABLE			
PIPE	SIZE & TYPE	LENGTH	SLOPE
P-11	18" HDPE	52-LF	0.005
P-12	24" HDPE	110-LF	0.005
P-13	12" HDPE	14-LF	0.005
P-14	12" HDPE	64-LF	0.005
P-15	10" HDPE	28-LF	0.005
P-16	15" HDPE	35-LF	0.005
P-17	18" HDPE	3-LF	0.005
P-18	12" HDPE	43-LF	0.005
P-19	12" HDPE	64-LF	0.042
P-20	6" HDPE	11-LF	0.004

Project:

CITY OF WORCESTER  
Dept. of Parks, Recreation & Cemetery



GREAT BROOK VALLEY PARKS  
IMPROVEMENTS  
33 Northeast Cutoff, Worcester,  
Massachusetts 01605



427 Main St. Suite 400,  
Worcester, MA 01608  
508.762.1676 800.SAMPSON  
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

Seal:



Issued For:

**PHASE 1  
CONSTRUCTION  
DOCUMENT**

Scale:

Date: MAY 23, 2025  
Drawn By: EM, LY, RB  
Reviewed By: MS, JJ  
Approved By: BK

W&S Project No:

W&S File No:

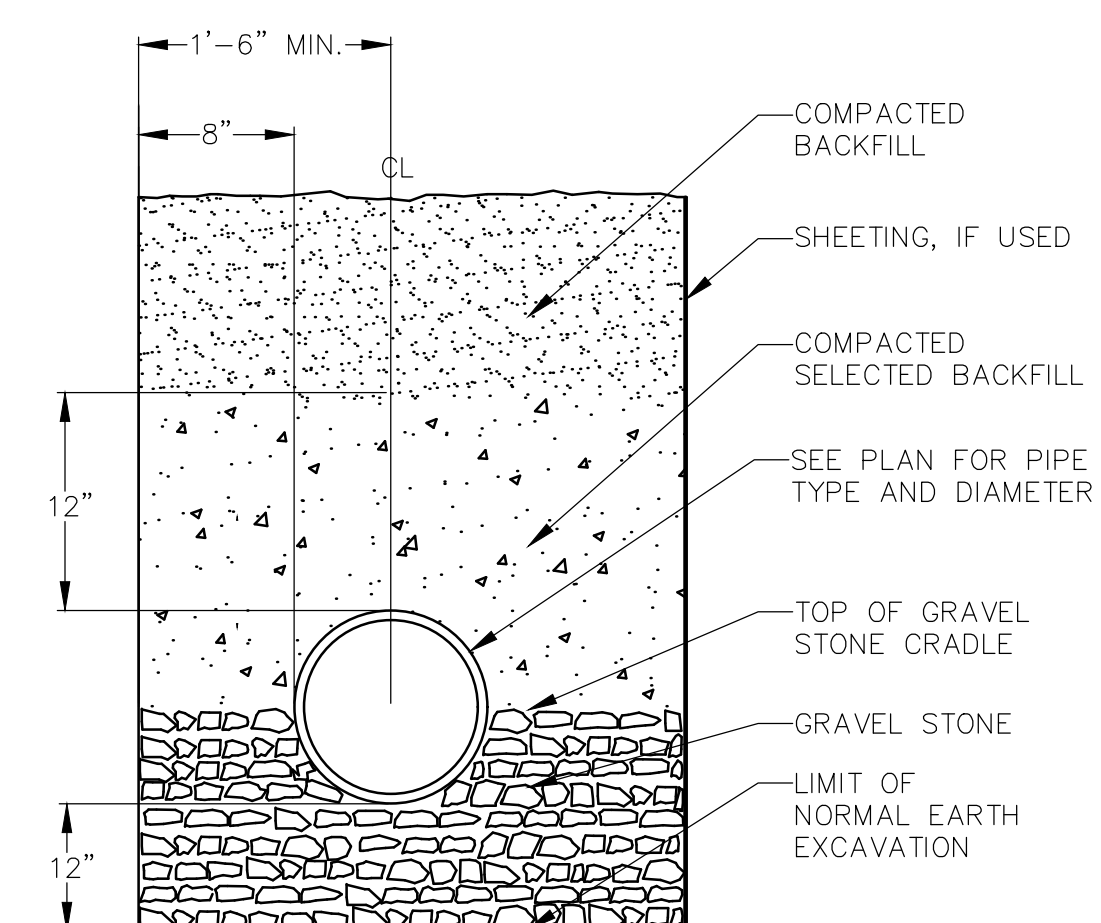
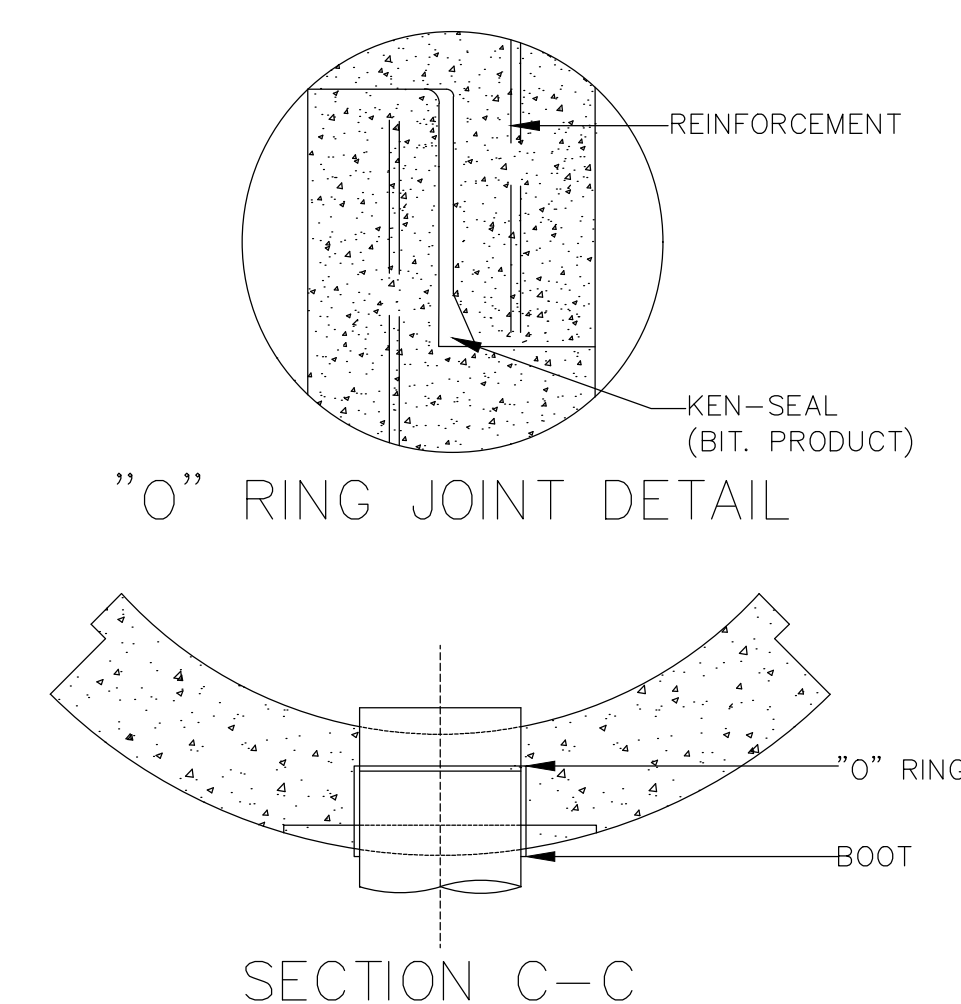
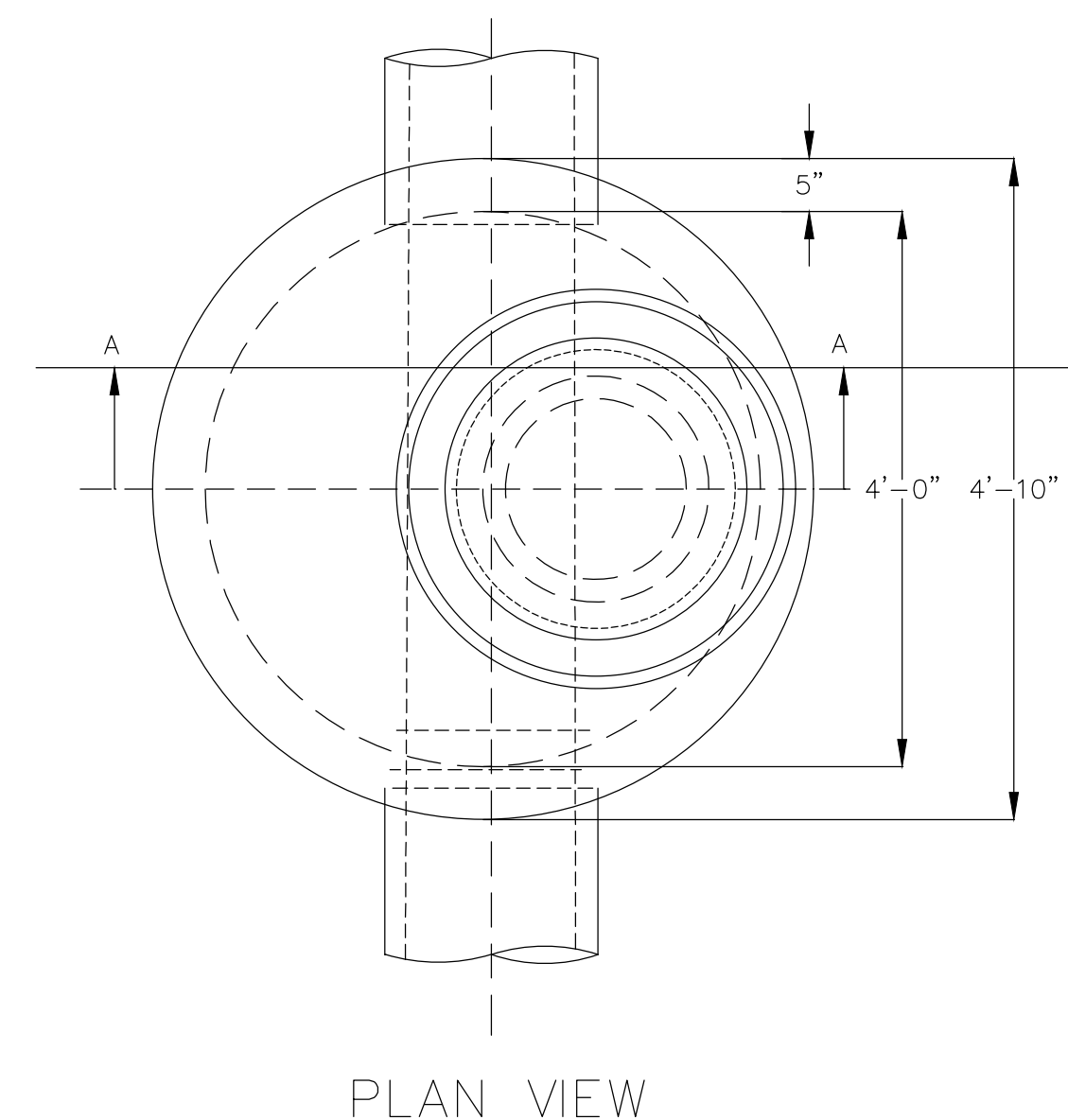
Drawing Title:

DRAINAGE SCHEDULE -  
BID ALT 1

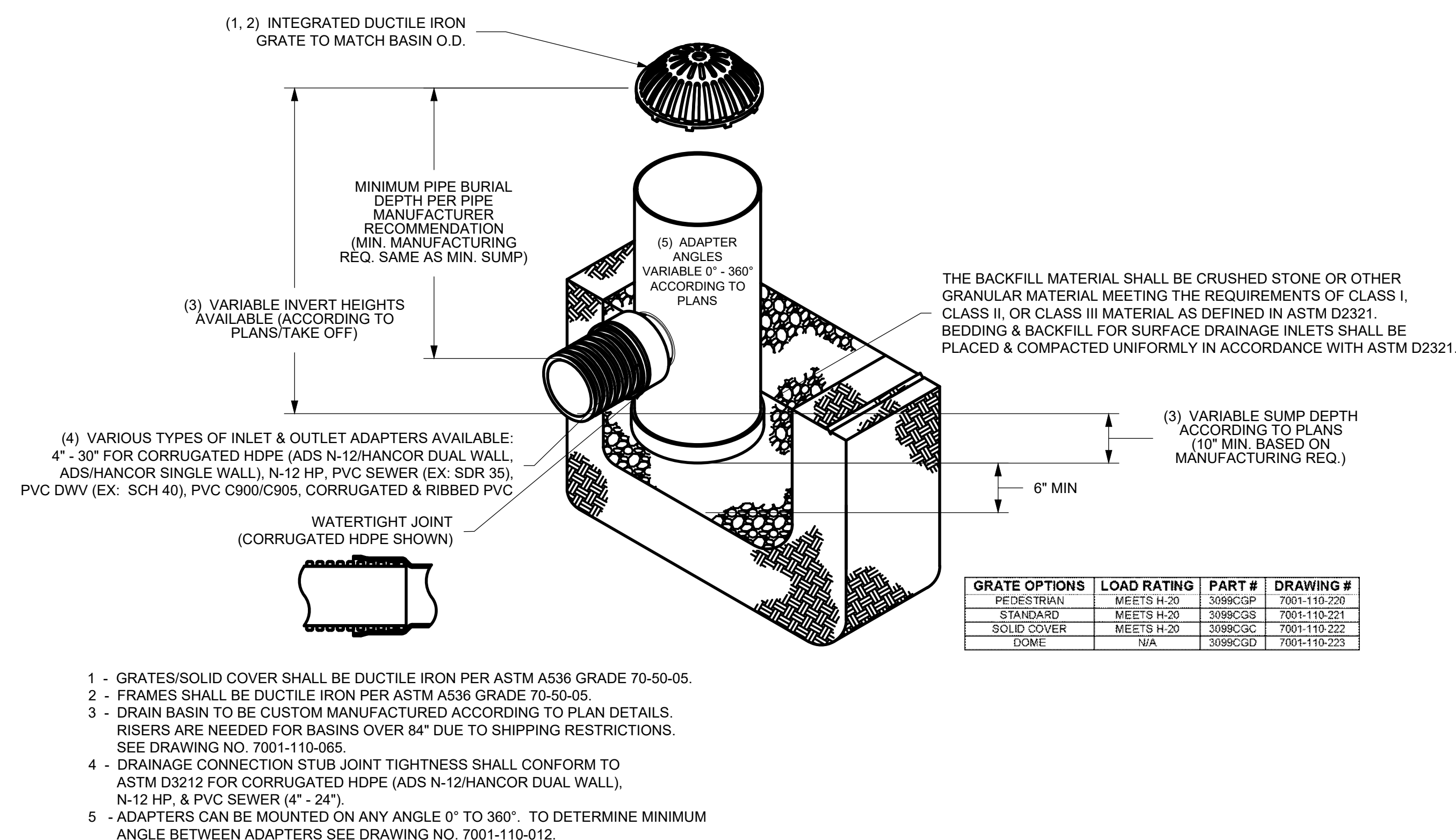
Sheet Number:

C103

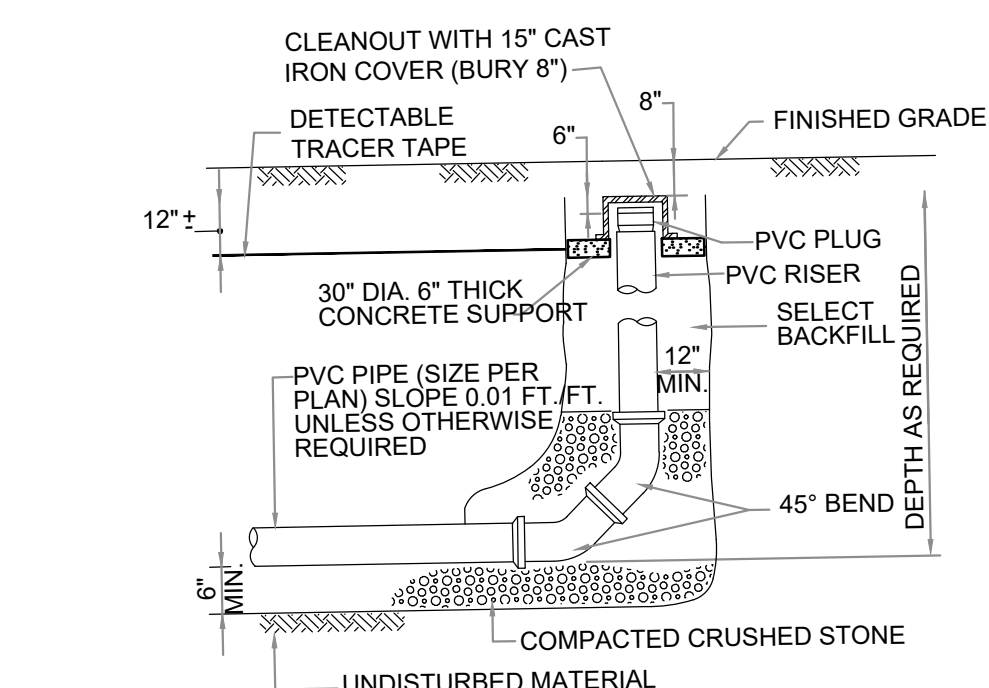




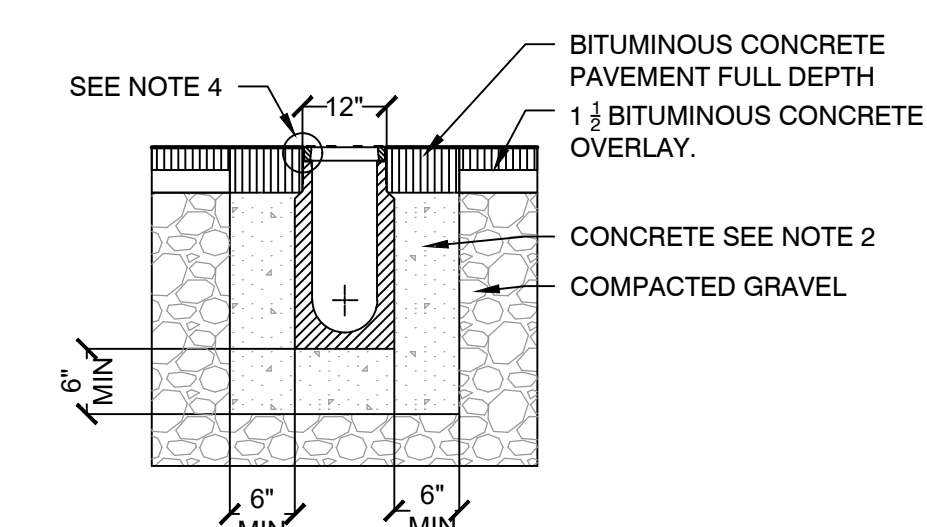
2 DRAIN TRENCH DETAIL  
SCALE: N.T.S.



5 AREA DRAIN  
SCALE: N.T.S.



**3 DRAIN CLEANOUT**  
SCALE: N.T.S.

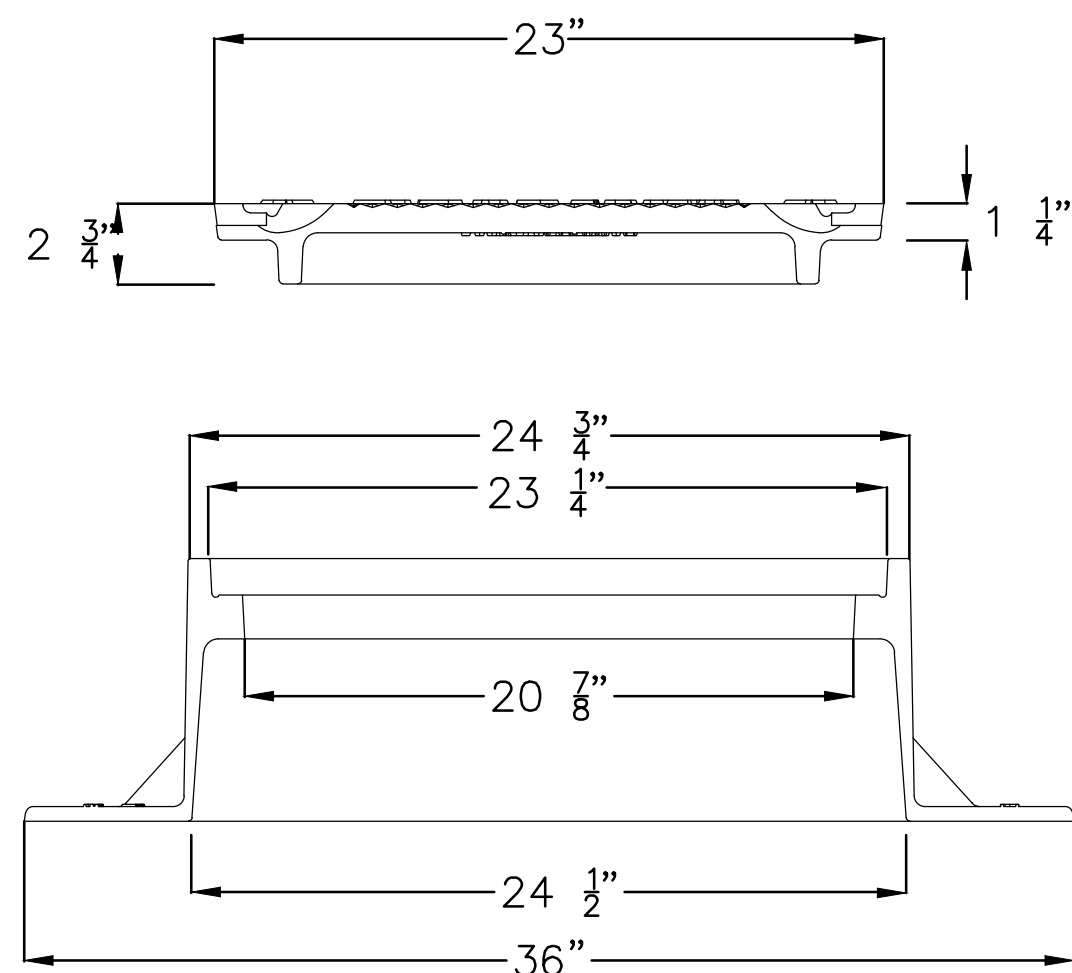
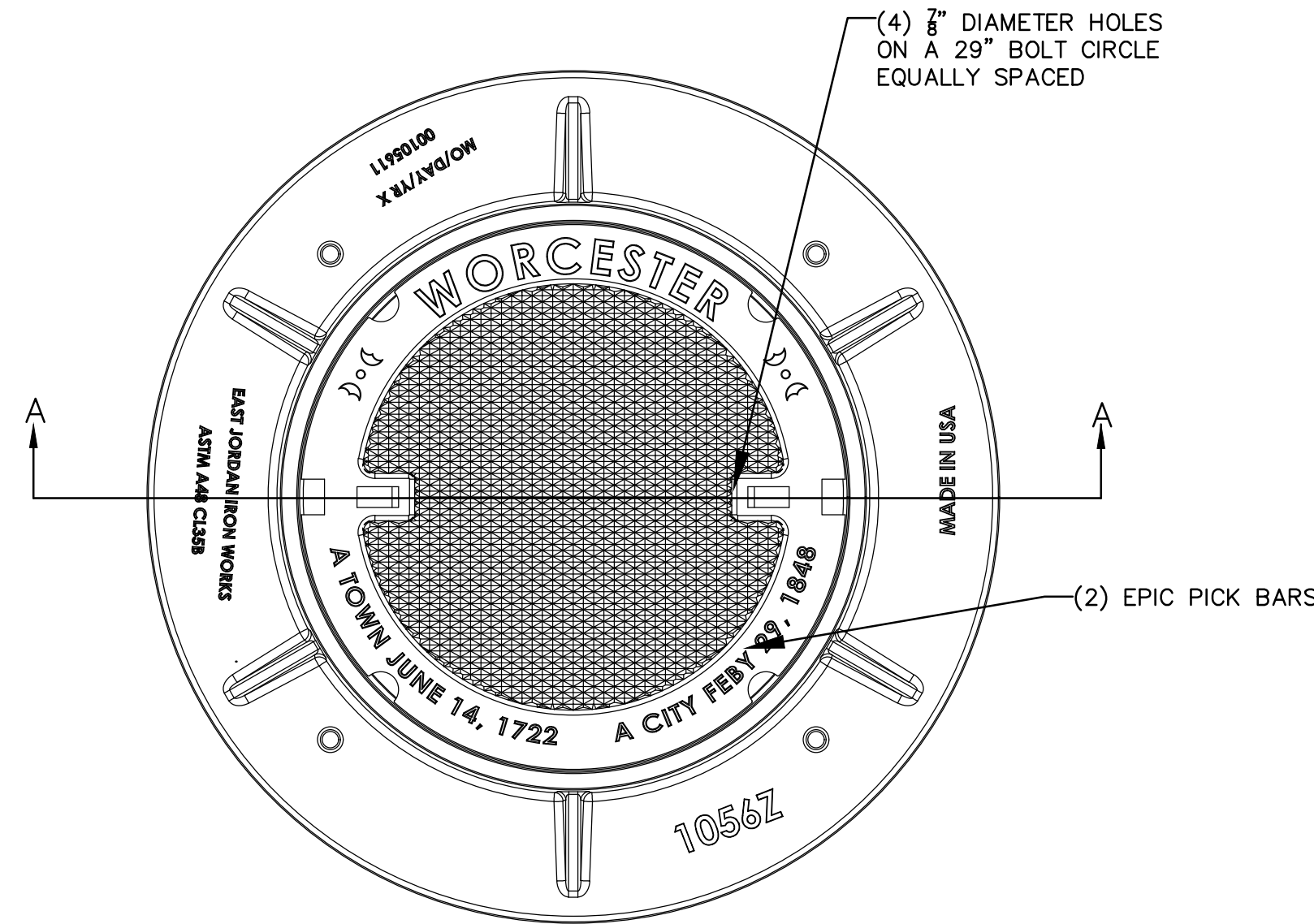


- NOTES:**
1. CONTRACTOR TO ENSURE THE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR THE EXISTING GROUND CONDITIONS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
  2. MINIMUM CONCRETE STRENGTH OF 3000 PSI. THE CONCRETE SHALL BE VIBRATED TO ELIMINATE AIR POCKETS.
  3. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE AT LEAST 18" ABOVE THE TOP OF THE CHANNEL DECK.
  4. TRENCH DRAIN SHALL BE MANUFACTURED BY ACCO OR APPROVED EQUAL. REFER TO MANUFACTURER'S LATEST INSTALLATION INSTRUCTIONS FOR COMPLETE DETAILS.

6 TRENCH DRAIN  
SCALE: N.T.S.

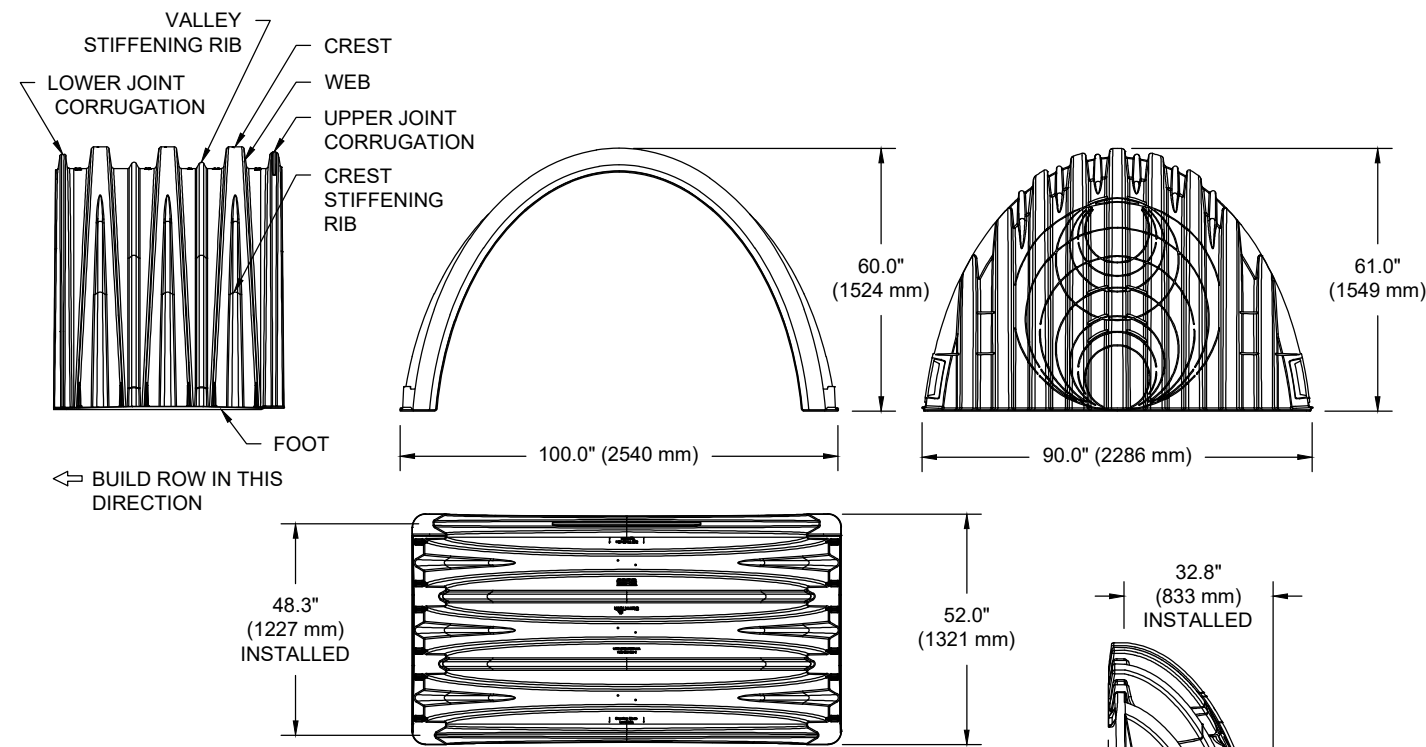


\\wds03.local\WGS\Projects\MA\Worcester - MA\Scans - Plans\Brook Valley\Great Brook Valley\Grd-CAD\Drawings\C501 - Civil Detail.dwg



MANHOLE FRAME & COVER EJIW 1056Z/1056A,  
LEBARON LC239/L23C-1, OR EQUAL.

1 MANHOLE FRAME & COVER ASSEMBLY DETAIL  
SCALE: N.T.S.



**NOMINAL CHAMBER SPECIFICATIONS**  
SIZE (W X H X INSTALLED LENGTH)  
CHAMBER STORAGE  
MINIMUM INSTALLED STORAGE\*  
WEIGHT (NOMINAL)

100.0" X 60.0" X 48.3"  
(2540 mm X 1524 mm X 1227 mm)  
106.5 CUBIC FEET  
(3.01 m³)  
162.6 CUBIC FEET  
(4.60 m³)  
125.0 lbs.  
(56.7 kg)

**NOMINAL END CAP SPECIFICATIONS**  
SIZE (W X H X INSTALLED LENGTH)  
END CAP STORAGE  
MINIMUM INSTALLED STORAGE\*  
WEIGHT (NOMINAL)

90.0" X 61.0" X 32.8"  
(2286 mm X 1549 mm X 833 mm)  
39.5 CUBIC FEET  
(1.12 m³)  
115.3 CUBIC FEET  
(3.26 m³)  
90 lbs.  
(40.8 kg)

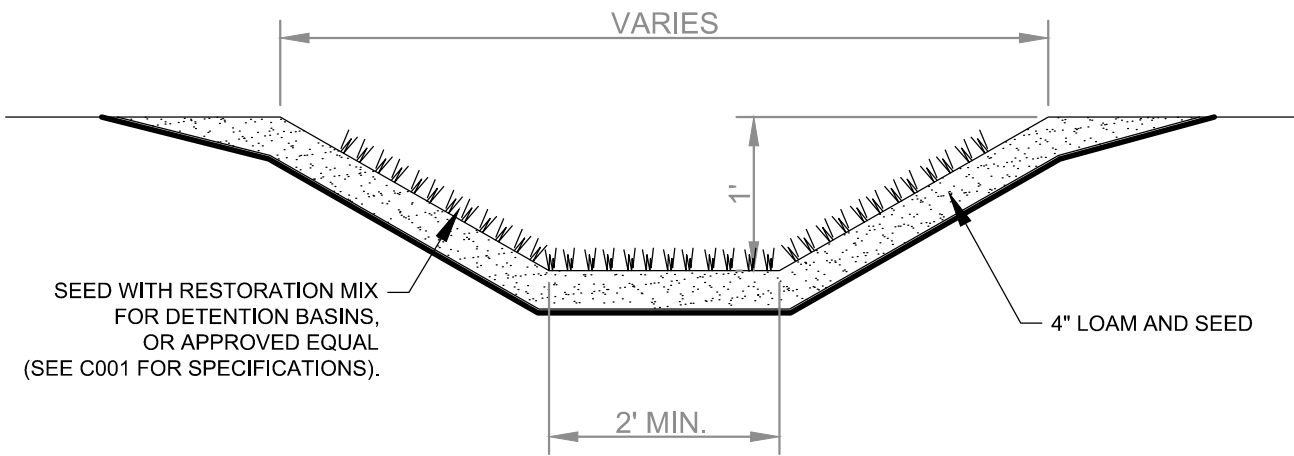
\*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS,  
12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"  
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"  
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

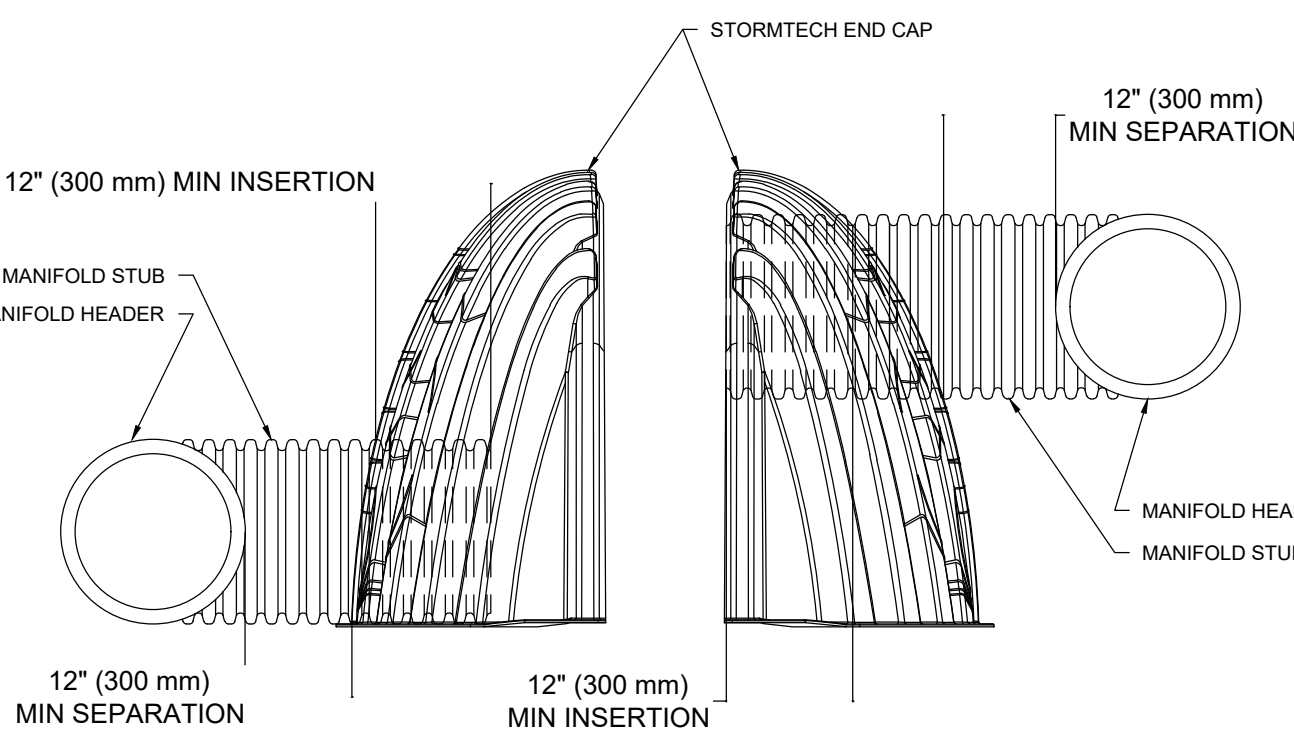
PART #	STUB	B	C
MC4500IEPP06T	6" (150 mm)	42.54" (1081 mm)	---
MC4500IEPP06B	---	---	0.86" (22 mm)
MC4500IEPP08T	8" (200 mm)	40.50" (1029 mm)	---
MC4500IEPP08B	---	---	1.01" (26 mm)
MC4500IEPP10T	10" (250 mm)	38.37" (975 mm)	---
MC4500IEPP10B	---	---	1.33" (34 mm)
MC4500IEPP12T	12" (300 mm)	35.69" (907 mm)	---
MC4500IEPP12B	---	---	1.55" (39 mm)
MC4500IEPP15T	15" (375 mm)	32.72" (831 mm)	---
MC4500IEPP15B	---	---	1.70" (43 mm)
MC4500IEPP18T	18" (450 mm)	29.36" (746 mm)	---
MC4500IEPP18TW	---	---	---
MC4500IEPP18BW	---	---	1.97" (50 mm)
MC4500IEPP24T	24" (600 mm)	23.05" (585 mm)	---
MC4500IEPP24TW	---	---	---
MC4500IEPP24B	---	---	2.26" (57 mm)
MC4500IEPP24BW	---	---	---
MC4500IEPP30BW	30" (750 mm)	---	2.95" (75 mm)
MC4500IEPP36BW	36" (900 mm)	---	3.25" (83 mm)
MC4500IEPP42BW	42" (1050 mm)	---	3.55" (90 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL.

4 MC-4500 TECHNICAL SPECIFICATIONS  
SCALE: N.T.S.

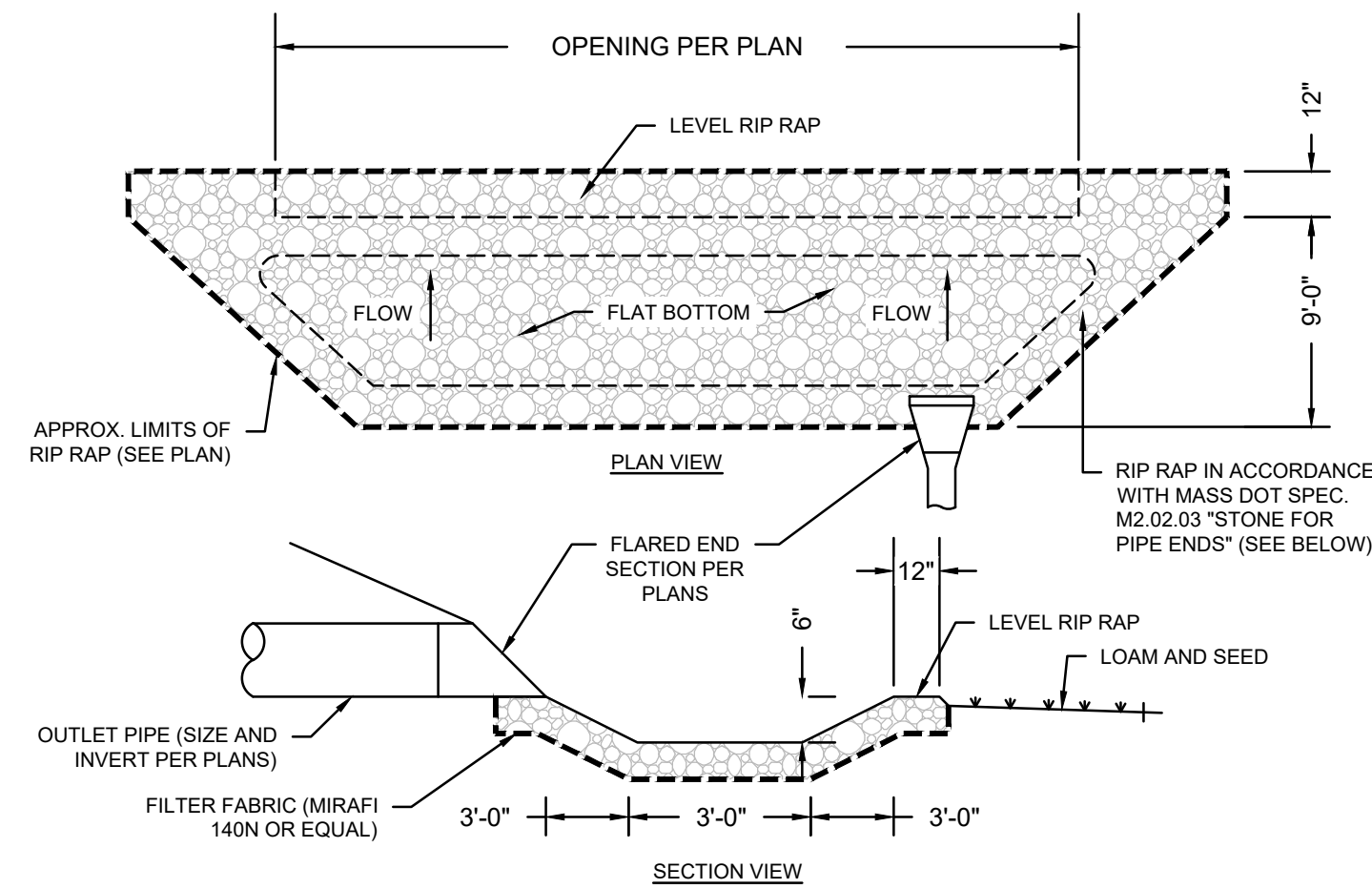


3 GRASSSED SWALE  
SCALE: N.T.S.



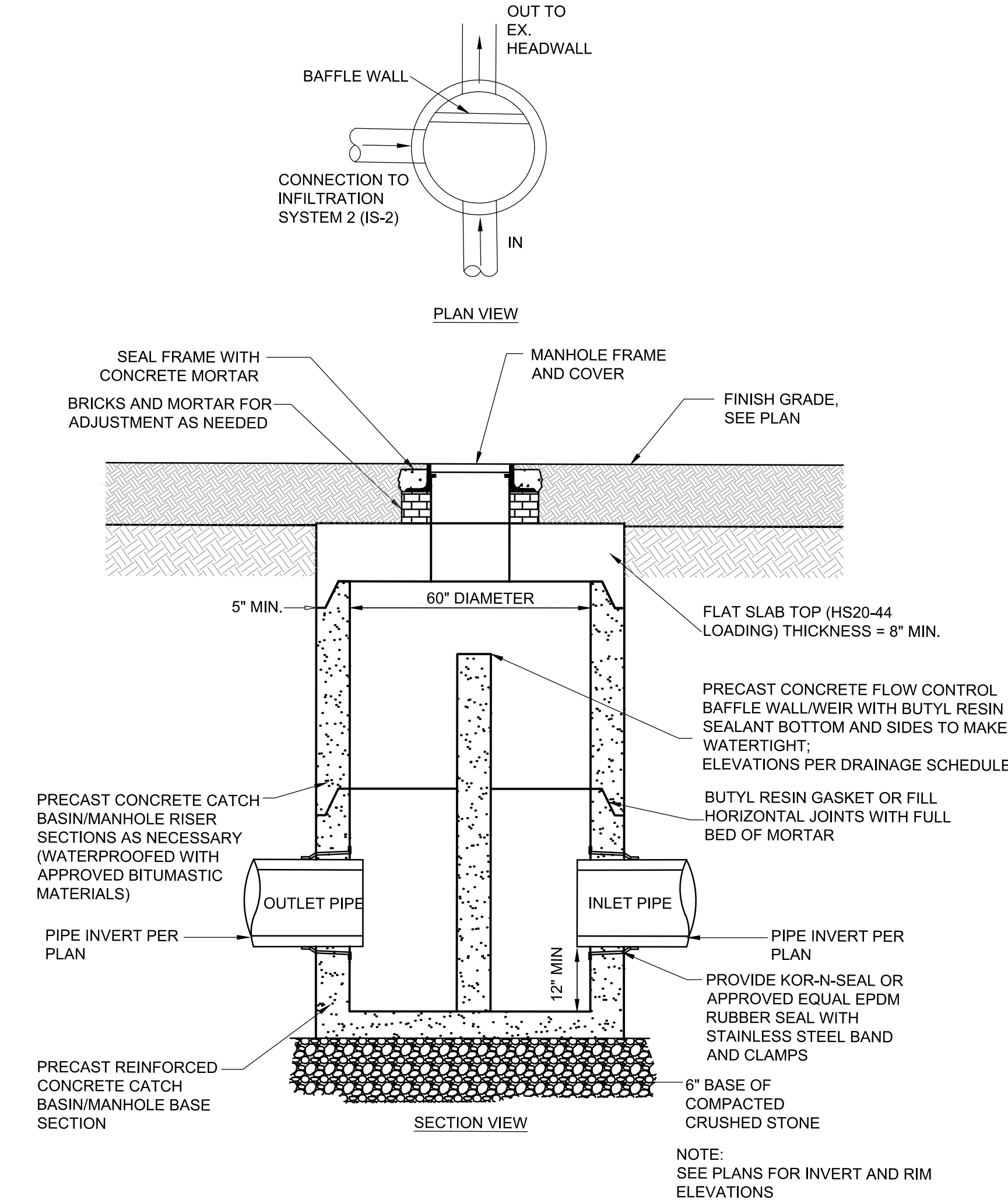
NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL  
FOR A PROPER FIT IN END CAP OPENING.

5 MC SERIES END CAP INSERTION DETAIL  
SCALE: N.T.S.



M2.02.03 STONE FOR PIPE ENDS.  
STONE FOR PIPE ENDS SHALL BE SOUND, DURABLE ROCK WHICH IS ANGULAR IN SHAPE. ROUNDED STONES, BOULDERS, SANDSTONE OR SIMILAR STONE OR RELATIVELY THIN SLABS WILL NOT BE ACCEPTABLE. EACH STONE SHALL WEIGH NOT LESS THAN 50 POUNDS NOT MORE THAN 125 POUNDS AND AT LEAST 75% OF THE VOLUME SHALL CONSIST OF STONES WEIGHING NOT LESS THAN 75 POUNDS EACH. THE REMAINDER OF THE STONES SHALL BE SO GRADED THAN WHEN PLACED WITH THE LARGER STONES THE ENTIRE MASS WILL BE COMPACT.

2 LEVEL SPREADER DETAIL  
SCALE: N.T.S.



6 OUTLET CONTROL STRUCTURE DETAIL  
SCALE: N.T.S.

Project:  
**CITY OF WORCESTER**  
Dept. of Parks, Recreation & Cemetery



**GREAT BROOK VALLEY PARKS  
IMPROVEMENTS**  
33 Northeast Cutoff, Worcester,  
Massachusetts 01605

**Weston & Sampson**

427 Main St, Suite 400,  
Worcester, MA 01608  
508.762.1676 800.SAMPSON  
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

Seal:



Issued For:

**PHASE 1  
CONSTRUCTION  
DOCUMENT**

Scale:

Date: MAY 23, 2025

Drawn By: EM, LY, RB

Reviewed By: MS, JJ

Approved By: BK

W&S Project No:

W&S File No:

Drawing Title:

**CIVIL DETAILS**

Sheet Number:

**C501**



\\west03.local\WSE\Projects\MA\Worcester\MA\Scanned\Great Brook Valley\Grd-C&S\Drawings\2500 Civil Detailing.dwg

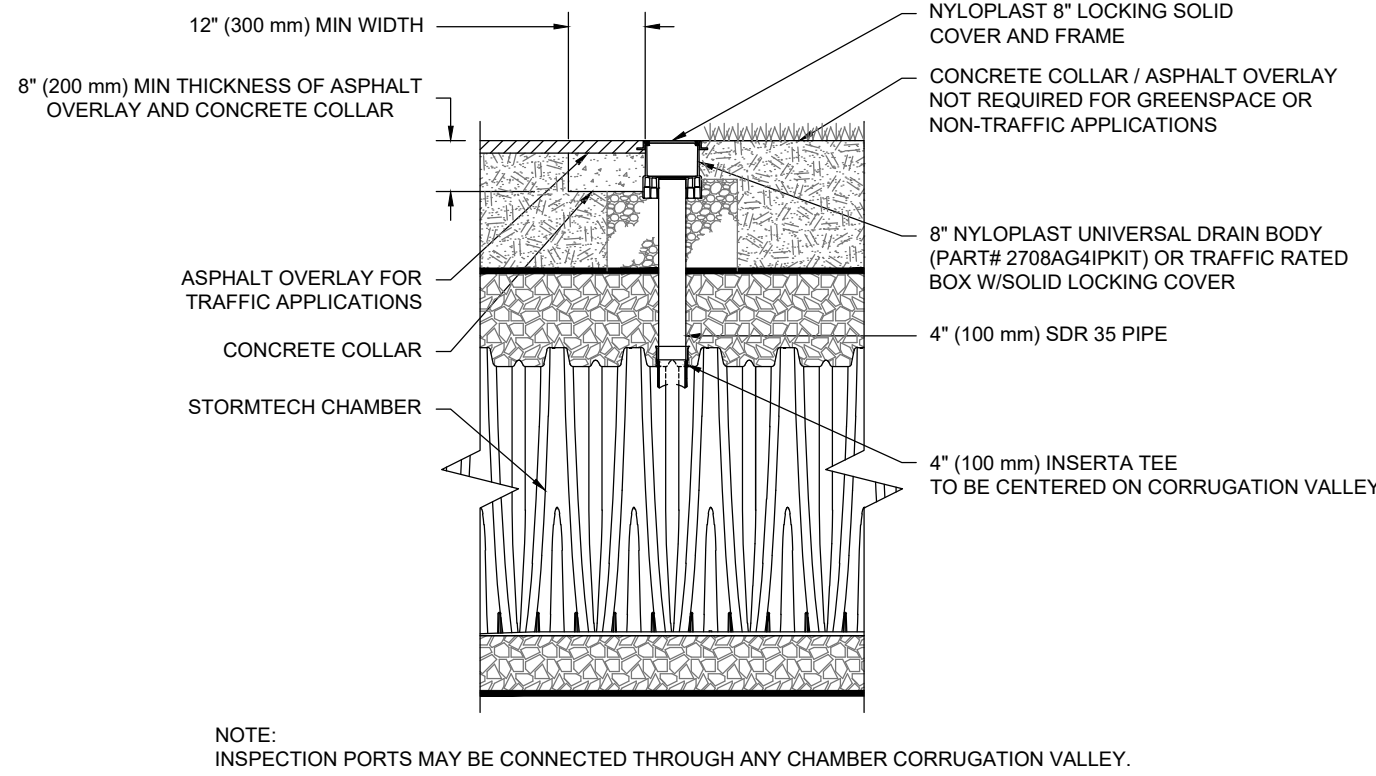
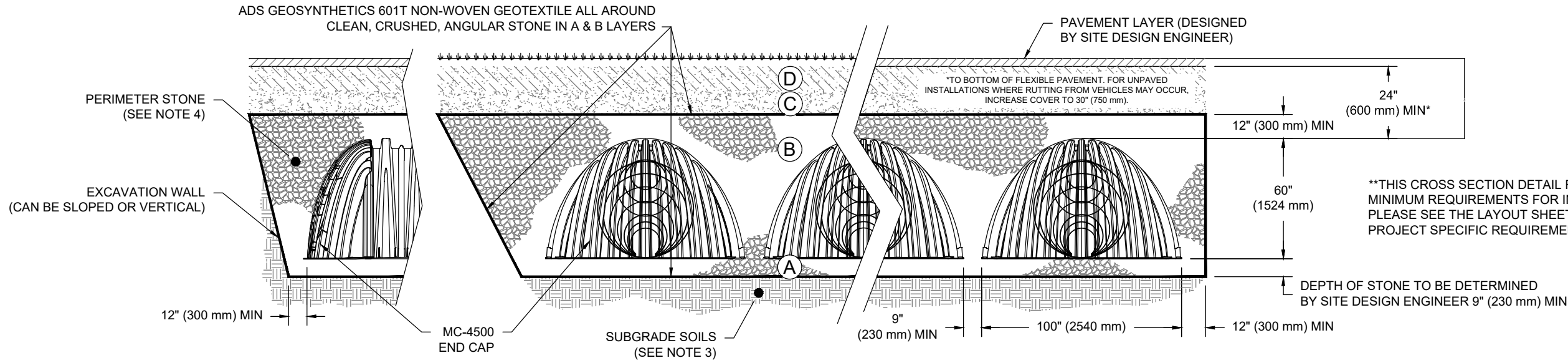
ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	<b>FINAL FILL:</b> FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	<b>INITIAL FILL:</b> FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145 <sup>1</sup> A-1, A-2.4, A-3 OR AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 76, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	<b>EMBEDMENT STONE:</b> FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE <sup>5</sup>	AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	<b>FOUNDATION STONE:</b> FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE <sup>5</sup>	AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. <sup>2,3</sup>

PLEASE NOTE:  
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".  
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.  
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.  
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.  
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".

NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
- MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT<sup>3</sup>(% AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.




1 MC-4500 CROSS SECTION DETAIL  
SCALE: N.T.S.

2 4" PVC INSPECTION PORT DETAIL (MC SERIES CHAMBER)  
SCALE: N.T.S.

Project:

**CITY OF WORCESTER**  
Dept. of Parks, Recreation & Cemetery



**GREAT BROOK VALLEY PARKS IMPROVEMENTS**  
33 Northeast Cutoff, Worcester, Massachusetts 01605

**Weston & Sampson**


427 Main St, Suite 400,  
Worcester, MA 01608  
508.762.1676 800.SAMPSON  
www.westonandsampson.com

Consultants:

Revisions:

No.	Date	Description

Seal:



Issued For:

**PHASE 1  
CONSTRUCTION  
DOCUMENT**

Scale:

Date: MAY 23, 2025

Drawn By: EM, LY, RB

Reviewed By: MS, JJ

Approved By: BK

W&S Project No:

W&S File No:

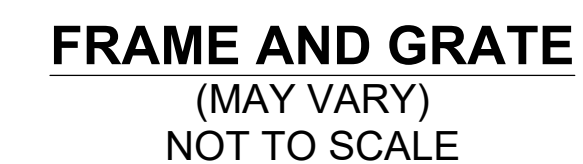
Drawing Title:

**CIVIL DETAILS**

Sheet Number:

**C502**





# C503

COPYRIGHT 2023 WESTON & SAMPSO