



















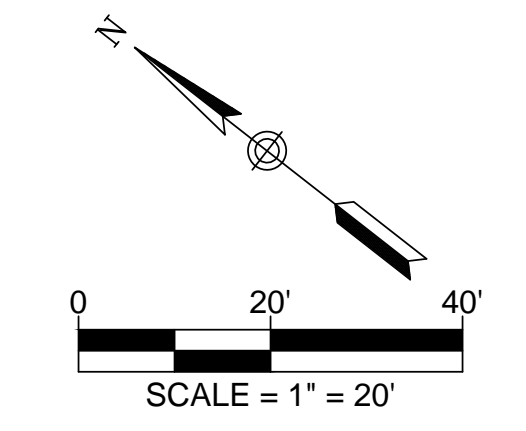
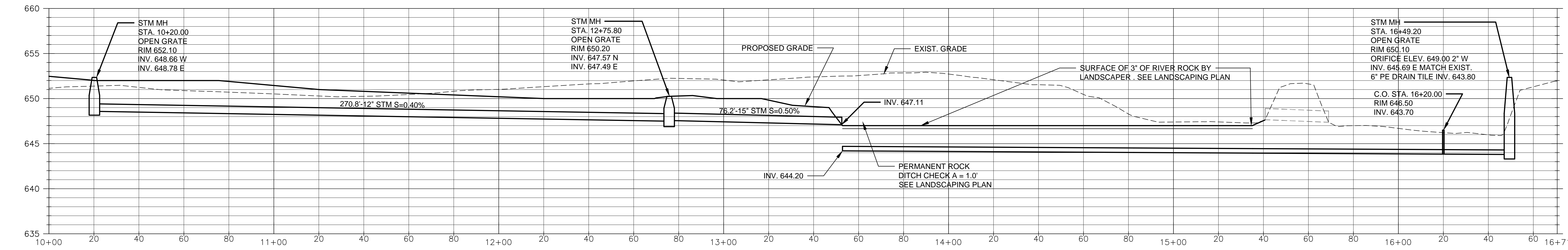
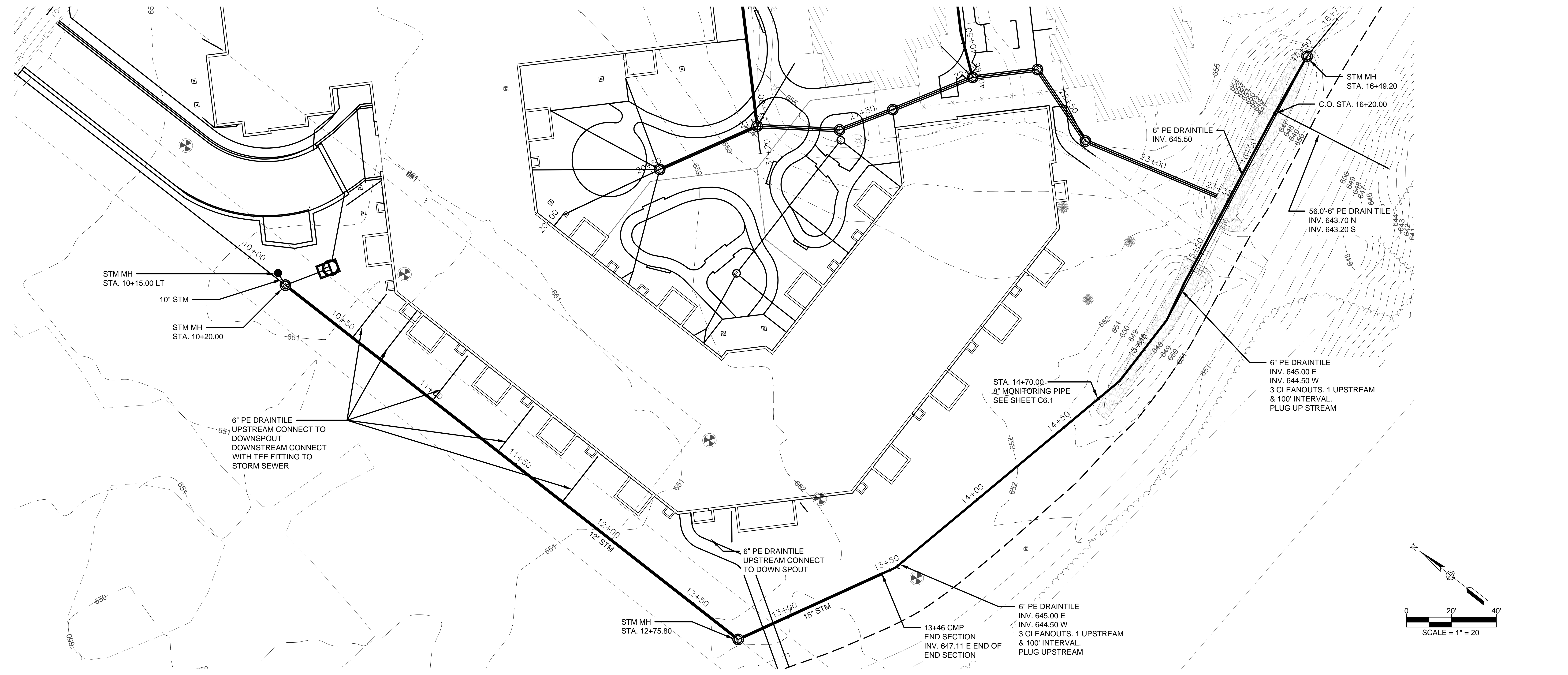
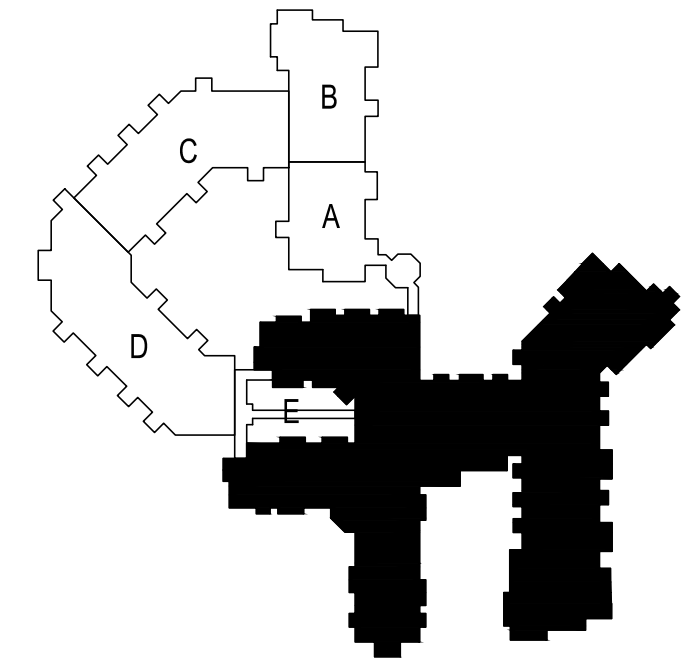
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 LA CROSSE, WI



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UTILITY PROFILE

Issue and Revisions:	03/26/2018

Commission No.	11067-002-020
Drawn by	KK/CSM
Checked by	DRC

SHEET

C3.1

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**GENERAL**

AN EROSION CONTROL PLAN IS INCLUDED WITHIN THE PLAN SET. EROSION CONTROL IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. COMPLY WITH THE EROSION CONTROL PLAN, PLAN DETAILS, AND CITY CODE CHAPTER 105 AND WISCONSIN ADMINISTRATIVE CODE NR 216. THE CHAPTER 105 IS ATTACHED AFTER THIS SECTION 10 AND THE LAND DISTURBANCE PERMIT APPLICATION HAS BEEN SUBMITTED BY WIESER BROTHERS.

ALL EROSION CONTROL MEASURES SHALL BE IN PLACE BEFORE THE START OF LAND DISTURBING ACTIVITIES AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND REMOVAL OF ALL EROSION CONTROL MEASURES.

EROSION CONTROL INCLUDES CONTROLLING FUGITIVE DUST CAUSED BY CONSTRUCTION TRAFFIC AND WIND EROSION. NECESSARY WATERING SHALL BE INCLUDED IN THE BID ITEM FOR EROSION CONTROL. STREETS OUTSIDE OF THE CONSTRUCTION AREAS SHALL BE KEPT CLEAN.

MATERIALS AND PRODUCTS SHALL COMPLY WITH THE CURRENT WISCONSIN DOT EROSION CONTROL PRODUCT ACCEPTABILITY LISTS (PAL) AT: [HTTP://WISCONSIN.DOT.GOV/PAGES/DOING-BUS/ENG-CONSULTANTS/CNslt-RSRCs/TOOLS/PAL/DEFAULT.ASPX](http://wisconsin.dot.gov/pages/doing-business/consultants/cnslt-rsrcs/tools/pal/default.aspx)

ALL CONTRACTORS SHALL COMPLY WITH NR151 WISCONSIN ADMINISTRATION CODE UNLESS AN ALTERNATE IS SPECIFICALLY APPROVED BY THE ENGINEER. TECHNICAL STANDARDS TO COMPLY WITH THESE REQUIREMENTS CAN BE FOUND AT [HTTP://DNR.WI.GOV/TOPIc/STORMWATER/CONSTRUCTION/EROSION\\_CONTROL.HTML](http://dnr.wi.gov/topic/stormwater/construction/erosion_control.html)

COMPLY WITH REQUIREMENTS. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE EROSION CONTROL PLAN, THE PLANS, THE SPECIFICATIONS, AND STORM WATER TECHNICAL STANDARDS AT [HTTP://DNR.WI.GOV/TOPIc/STORMWATER/STANDARDS/CONST\\_STANDARDS.HTML](http://dnr.wi.gov/topic/stormwater/standards/const_standards.html)

WHEN THE SITE IS FINALLY STABILIZED, AS DETERMINED BY THE ENGINEER, REMOVE ALL TEMPORARY EROSION CONTROL DEVICES INCLUDING THOSE INSTALLED BY OTHERS. FINAL STABILIZATION IS CONSIDERED 70% VEGETATION COVERAGE ON ALL DISTURBED AREAS. UPON FINAL STABILIZATION, SUBMIT THE EROSION CONTROL PERMIT NOTICE OF TERMINATION AND DAILY LOGS TO THE ENGINEER.

**EROSION CONTROL NOTES**

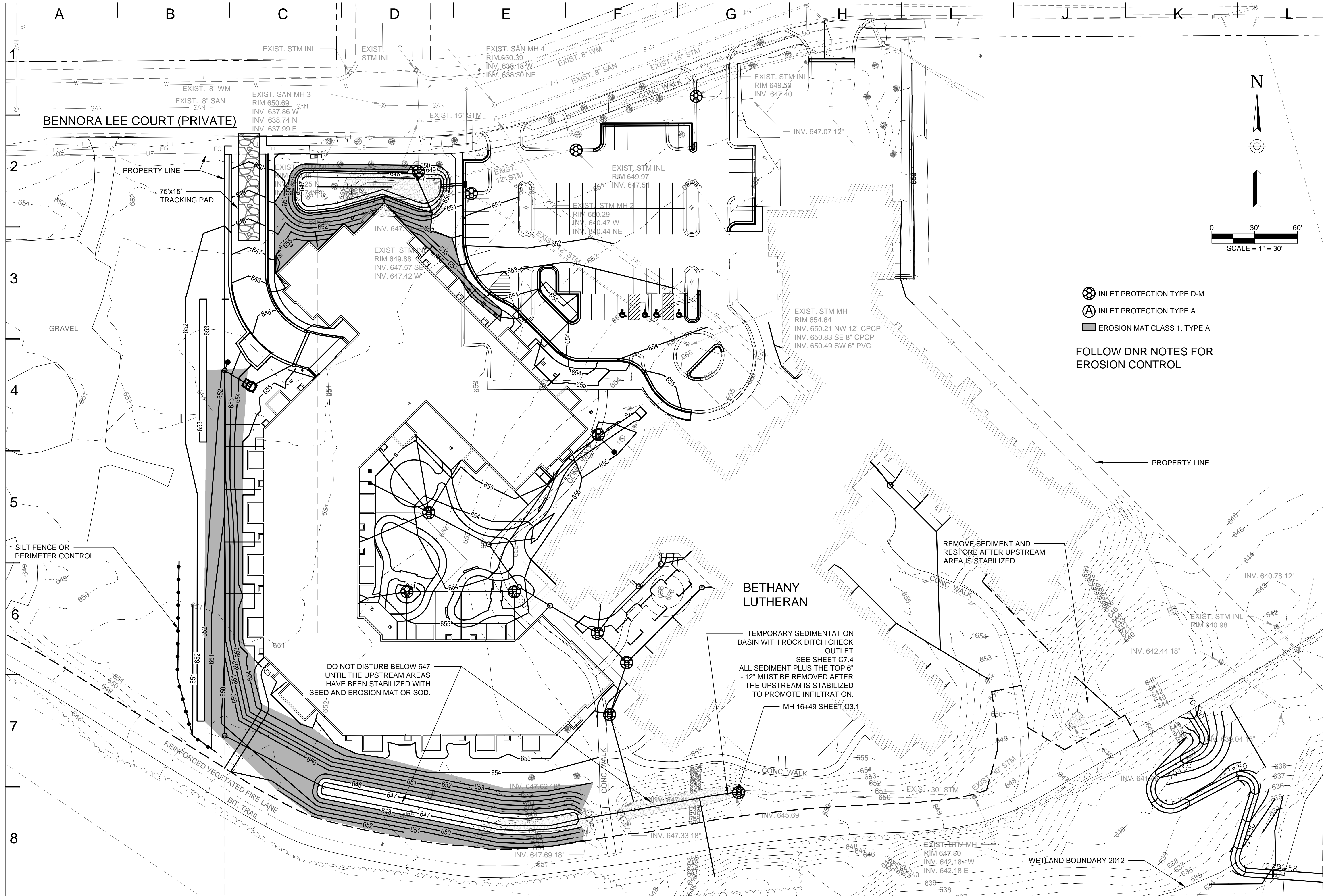
- KEEP A COPY OF THE CURRENT EROSION CONTROL PLAN ONSITE THROUGHOUT THE DURATION OF THE PROJECT.
- SUBMIT PLAN REVISIONS OR AMENDMENTS TO THE ENGINEER FOR REVIEW AND THEN TO THE CITY AND DNR AT LEAST 5 DAYS PRIOR TO FIELD IMPLEMENTATION.
- THE CONTRACTOR IS RESPONSIBLE FOR ROUTINE SITE INSPECTIONS AT LEAST ONCE EVERY 7 DAYS AND WITHIN 24 HOURS AFTER A RAINFALL EVENT OF 0.5 INCHES OR GREATER. PRIOR TO IMPENDING RAIN, INSPECT ALL EROSION CONTROL BMPs (BEST MANAGEMENT PRACTICES) AND MAKE CORRECTIONS/ADDITIONS AS NECESSARY TO PROTECT WORK AND MINIMIZE EROSION AND SEDIMENTATION. KEEP INSPECTION REPORTS ONSITE AND MAKE THEM AVAILABLE UPON REQUEST. ANY FACILITY IN DISREPAIR OR AT 30% CAPACITY SHALL BE CLEANED AND REPAIRED WITHIN 24-HOURS OF THE INSPECTION.
- INSPECT AND MAINTAIN ALL INSTALLED EROSION CONTROL PRACTICES UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

- WHEN POSSIBLE PRESERVE EXISTING VEGETATION, MINIMIZE LAND-DISTURBING CONSTRUCTION ACTIVITY ON SLOPES OF 20% OR MORE. MINIMIZE SOIL COMPACTION AND PRESERVE TOPSOIL. DISTURB ONLY THOSE AREAS IMMEDIATELY NEEDED FOR CONSTRUCTION.
- REFER TO WDNr TECHNICAL STANDARDS FOR STORM WATER CONSTRUCTION AT [HTTP://DNR.WI.GOV/TOPIc/STORMWATER/STANDARDS/CONST\\_STANDARDS.HTML](http://dnr.wi.gov/topic/stormwater/standards/const_standards.html)
- STAGE CONSTRUCTION GRADING ACTIVITIES TO MINIMIZE THE CUMULATIVE EXPOSED AREA. CONDUCT TEMPORARY GRADING FOR EROSION CONTROL PER WDNr TECHNICAL STANDARD **TEMPORARY GRADING PRACTICES FOR EROSION CONTROL #1067**
- INSTALL INLET PROTECTION PRIOR TO LAND DISTURBING ACTIVITIES. USE WDNr TECHNICAL STANDARD **STORM DRAIN INLET PROTECTION FOR CONSTRUCTION SITES 1060**.
- INSTALL PERIMETER CONTROLS AND TRACKING PADS AT ENTRANCES PRIOR TO ANY LAND DISTURBING ACTIVITIES. USE WDNr TECHNICAL STANDARD **STONE TRACKING PAD AND TIRE WASHING 1057** FOR TRACKING PADS. PROPRIETARY TRACKING PADS, SUCH AS MUD MATS, ARE ACCEPTABLE WITH THE APPROVAL OF THE ENGINEER, BUT THEY HAVE A HISTORY OF NOT WORKING AS WELL AS A WELL-MAINTAINED ROCK PAD. THE DAY OF AND THE DAY FOLLOWING RAIN USUALLY REQUIRES THE TRACKING PAD TO BE CLEANED AND REPAIRED SEVERAL TIMES PER DAY. INSTALL AND MAINTAIN A TRACKING PAD AT THE SITE ENTRANCE PER PLAN DETAILS. ADJUST THE LOCATION OF THE TRACKING PAD AS NECESSARY FOR PROJECT PHASES. THE CONTRACTOR SHALL ADD/REPLACE ROCK AS NECESSARY TO INSURE PROPER PERFORMANCE. IF TRACKING OCCURS ON THE PAVEMENT, THEN THE ROCK AT THE TRACKING PAD NEEDS TO BE REPLACED MORE FREQUENTLY. CLEAN UP TRACKING ONTO PAVED ROADS AT THE END OF EACH WORK DAY WITH A SWEEPER VACUUM MACHINE.
- PROVIDE ANTI-SCOUR PROTECTION AND MAINTAIN NON-EROSIVE FLOW DURING DEWATERING. LIMIT PUMPING RATES TO EITHER (A) THE SEDIMENT BASIN/TRAP DESIGN DISCHARGE RATE, OR (B) THE BASIN DESIGN RELEASE RATE WITH THE CORRECTLY FITTED HOSE AND GEOTEXTILE FILTER BAG. PERFORM DEWATERING OF ACCUMULATED SURFACE RUNOFF IN ACCORDANCE WITH WDNr TECHNICAL STANDARD **DE-WATERING #1061**.
- INSTALL AND MAINTAIN SILT FENCING, WHICH IS ALSO PERIMETER CONTROL, PER WDNr TECHNICAL STANDARD **SILT FENCE 1056** EXCEPT WHERE MORE RESTRICTIVE HEREIN.
- REMOVE SEDIMENT FROM BEHIND SEDIMENT BARRIERS LIKE SILT FENCE, DITCH CHECKS, AND FILTER SOCKS, BEFORE SEDIMENT REACHES A DEPTH THAT IS EQUAL TO 30% OF THE BARRIER HEIGHT.
- IMMEDIATELY STABILIZE STOCKPILES AND SURROUND STOCKPILES WITH SILT FENCE OR OTHER PERIMETER CONTROL IF STOCKPILES WILL REMAIN INACTIVE FOR 7 DAYS OR LONGER. IMMEDIATELY STABILIZE ALL DISTURBED AREAS THAT WILL REMAIN INACTIVE FOR 14 DAYS OR LONGER OR WITHIN 21 DAYS OF INITIAL DISTURBANCE. BETWEEN SEPTEMBER 15 AND OCTOBER 15, STABILIZE WITH MULCH, TACKIFIER, AND PERENNIAL SEED MIXED WITH WINTER WHEAT, ANNUAL OATS, OR ANNUAL RYE, AS APPROPRIATE FOR REGION AND SOIL TYPE. OCTOBER 15 THROUGH COLD WEATHER STABILIZE WITH A POLYMER AND DORMANT SEED MIX, AS APPROPRIATE FOR REGION AND SOIL TYPE. SEE NOTE 17. STABILIZATION IS INSTALLATION OF COMPACT BASE COURSE ON DRIVING SURFACES AND SEED AND MULCH PROPOSED VEGETATED AREAS. EROSION CAN BE REDUCED 98% BY PROTECTING SOIL FROM RAINDROP IMPACT.
- SWEEP/CLEAN UP ALL SEDIMENT THAT MOVES OFFSITE DUE TO CONSTRUCTION ACTIVITY FOR STORM EVENTS BEFORE THE END OF THE SAME WORKDAY OR AS DIRECTED BY THE ENGINEER. SEPARATE SWEEPED MATERIALS (SOILS AND TRASH) AND DISPOSE OF APPROPRIATELY.

- THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST PER WDNr TECHNICAL STANDARD **DUST CONTROL ON CONSTRUCTION SITES 1068**. EROSION CONTROL INCLUDES CONTROLLING FUGITIVE DUST CAUSED BY WIND EROSION. NECESSARY WATERING SHALL BE INCLUDED IN THE BID ITEM FOR EROSION CONTROL. STREETS AND ROADS OUTSIDE OF THE CONSTRUCTION AREAS SHALL BE KEPT CLEAN. BEST MANAGEMENT PRACTICES INCLUDE WATERING, MULCHING, AND SILT FENCE OR STRAW BALES AS "SNOW" FENCE.
- COORDINATE WITH THE ENGINEER TO UPDATE THE LAND DISTURBANCE PERMIT TO INDICATE THE ANTICIPATED OR LIKELY DISPOSAL LOCATIONS FOR EXCAVATED SOILS OR CONSTRUCTION DEBRIS THAT WILL LEAVE THE SITE. THE DEPOSITED OR STOCKPILED MATERIAL NEED TO INCLUDE PERIMETER SEDIMENT CONTROL MEASURES SUCH AS SILT FENCE, HAY BALES, FILTER SOCKS OR COMPACTED EARTHEN BERMS.
- MAKE PROVISIONS FOR WATERING DURING THE FIRST 8 WEEKS FOLLOWING SOD INSTALLATION WHENEVER MORE THAN 7 CONSECUTIVE DAYS OF DRY WEATHER (LESS THAN 0.1" OF RAINFALL) OCCUR.
- INSTALL ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AS NEEDED (SUCH AS TEMPORARY SEDIMENT BASINS, DITCH CHECKS, EROSION CONTROL MATTING, SILT FENCE, FILTER SOCKS, SWALES, ETC) OR AS DIRECTED BY THE ENGINEER.
- LAND APPLICATION OF PRODUCTS CONTAINING WATER SOLUBLE ANIONIC POLYACRYLAMIDE (PAM) AS TEMPORARY SOIL BINDING AGENTS SHALL BE INSTALLED AND MAINTAINED PER WDNr TECHNICAL STANDARD **LAND APPLICATION OF ANIONIC POLYACRYLAMIDE 1050**. THIS STANDARD IS NEEDED FOR DISTURBED AREA THAT CANNOT BE VEGETATED BEFORE OCTOBER 15<sup>th</sup>.
- LIMIT EXTERNAL WASHING OF TRUCKS AND OTHER CONSTRUCTION EQUIPMENT TO A DEFINED AREA OF THE SITE. CONTAIN RUNOFF AND PROPERLY DISPOSE OF WASTE. NO ENGINE DEGREASING IS ALLOWED ON SITE.
- PRIOR TO WEEKEND SHUT DOWN OR IMPENDING RAIN, INSPECT ALL EROSION CONTROL BEST MANAGEMENT PRACTICES (BMPs) AND MAKE CORRECTIONS/ADDITIONS AS NECESSARY TO PROTECT WORK AND MINIMIZE EROSION AND SEDIMENTATION.
- IN NOVEMBER, THE BUILDER SHALL MEET WITH THE ENGINEER TO ARRIVE AT A WINTER EROSION CONTROL PLAN.
- THE CONTRACTOR SHALL PROVIDE A SPILL PREVENTION AND MITIGATION PLAN AT THE PRECONSTRUCTION CONFERENCE. REFER TO THIS SPILL PLAN IF THERE IS A DISCHARGE OF SEDIMENT AND/OR OTHER CONTAMINANTS.

**EROSION SEQUENCE**

- INSTALL INLET PROTECTION AT GRATED STORM STRUCTURES AND PERIMETER BARRIER (SILT FENCE OR ONE FOOT DIA. WATTLE) ALONG SIDEWALK AND AT PLAN LOCATIONS. INSTALL TEMPORARY ACCESS ENTRANCE AND TIRE WASH. INSTALL MH 16+49.20 WITH DITCH CHECK AND OR FILTER FABRIC.
- SALVAGE AGGREGATE BASE COURSE AND STOCKPILE. CLEAR AND GRUB. STRIP TOPSOIL AND STOCKPILE. INSTALL SEDIMENTATION BASIN WITH NO EXCAVATION BELOW 648 AND THEN START MASS GRADING. CONSTRUCT FOUNDATION.
- EXCAVATE AND INSTALL FOUNDATION, CONDUITS FOR ELECTRIC, DATA, FIRE ALARM, FIBER OPTIC, AND TELEPHONE, STORM SEWER, SANITARY SEWER SERVICE, AND WATER SERVICE. CONTINUE CONSTRUCTION OF BUILDING. AT THE OPTION OF THE CONTRACTOR, REPLACED TYPE D PROTECTION WITH TYPE B OR C INLET PROTECTION AROUND NEW INLETS AND MANHOLES WITH GRATES AFTER UPSTREAM AREA IS STABILIZED.
- GRADE SITE TO SUBGRADE AND INSTALL AGGREGATE BASE
- INSTALL SIDEWALK AND CURB AND GUTTER.
- PAVE PARKING LOT.



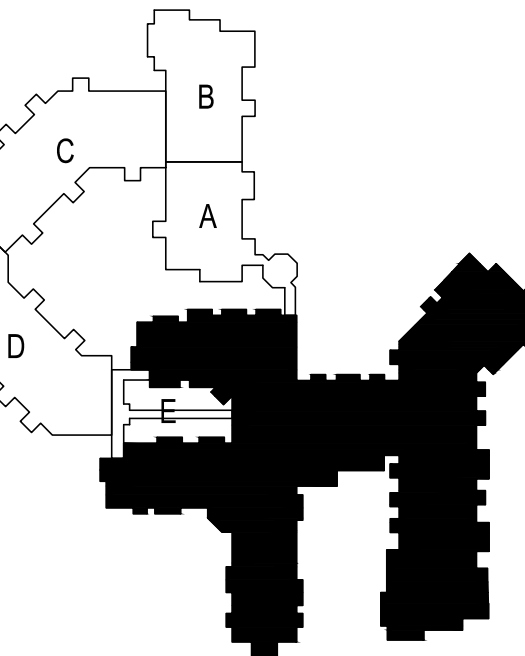
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**EROSION CONTROL PLAN**

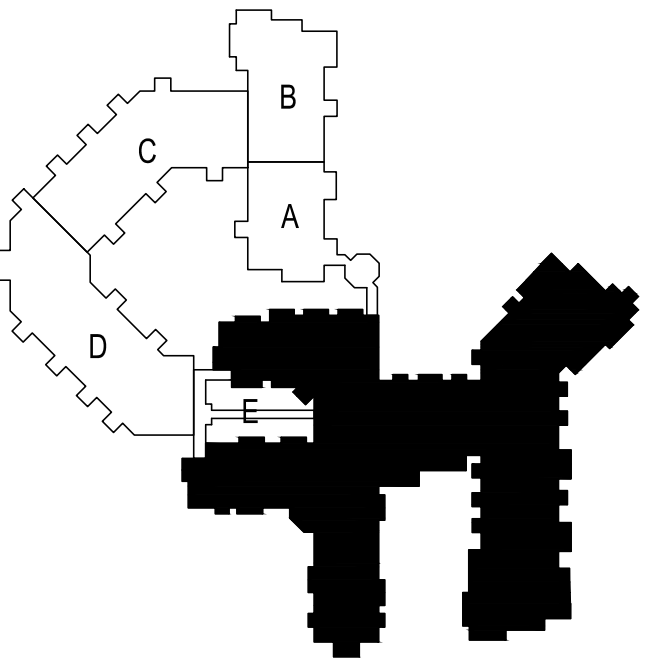
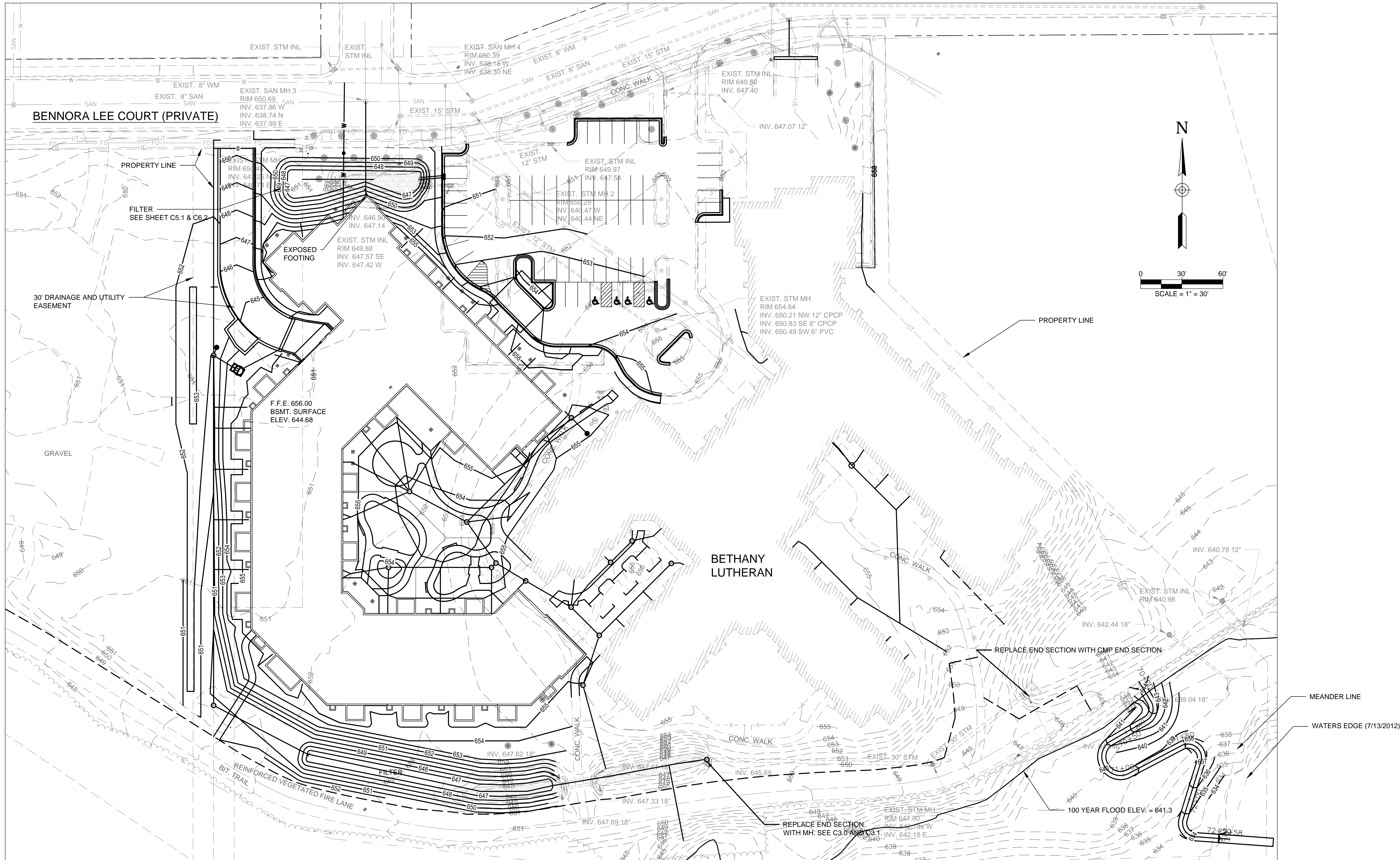
Issue to Permit: 03/26/2018

Revision No. 11067-002.020  
 Drawn by: KK  
 Checked by: DRC

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**OVERALL  
GRADING PLAN**

Revision No.	03/26/2018

Commission No.	11067-002.020
Drawn by	KK
Checked by	DRC

SHEET

**C5.0**

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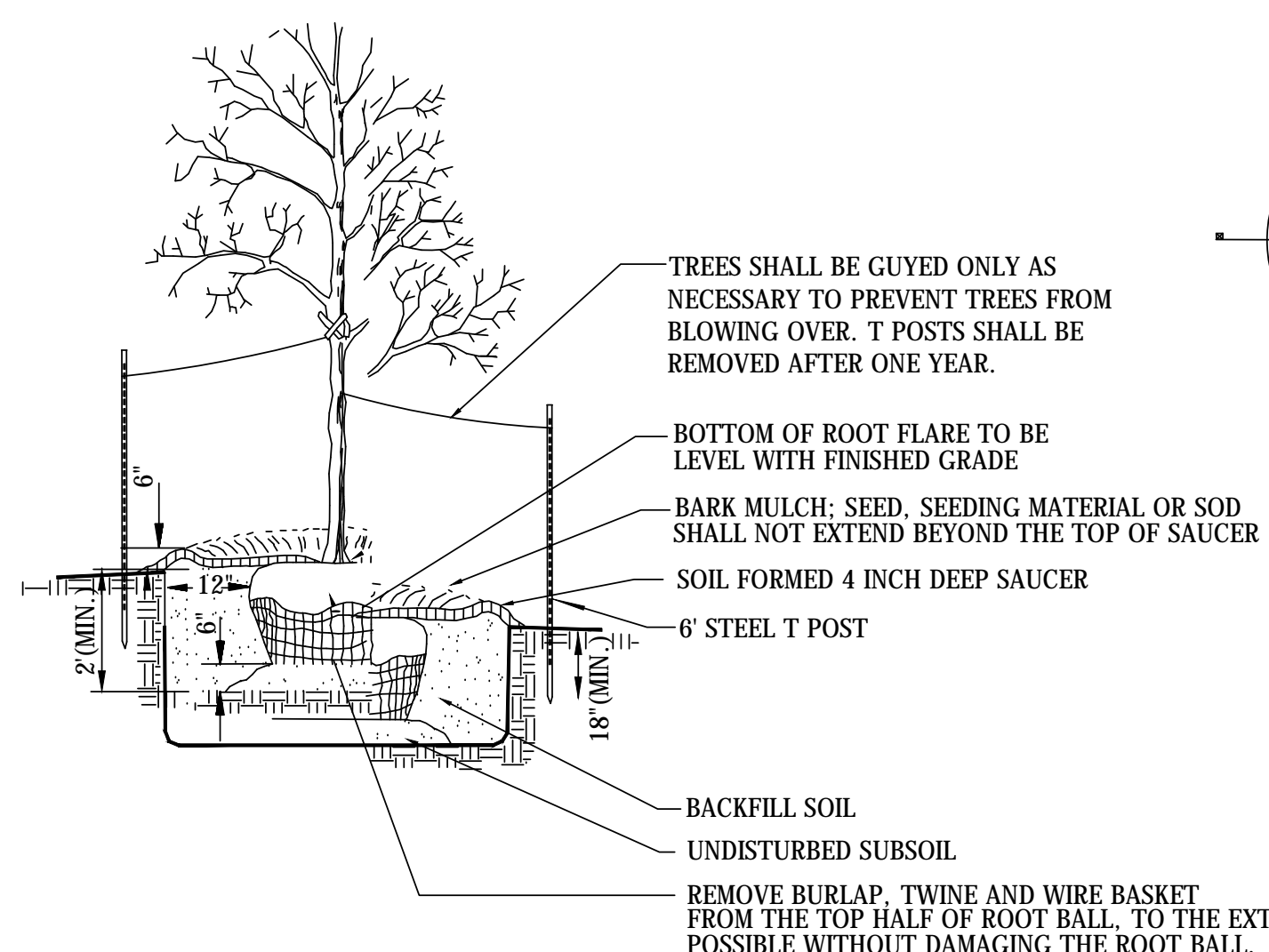




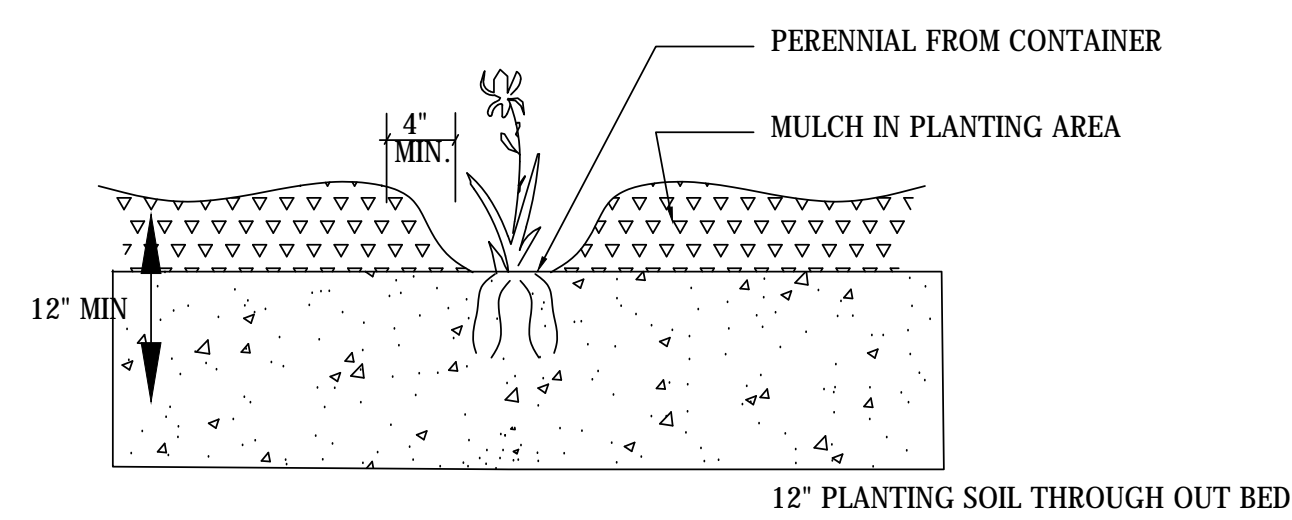




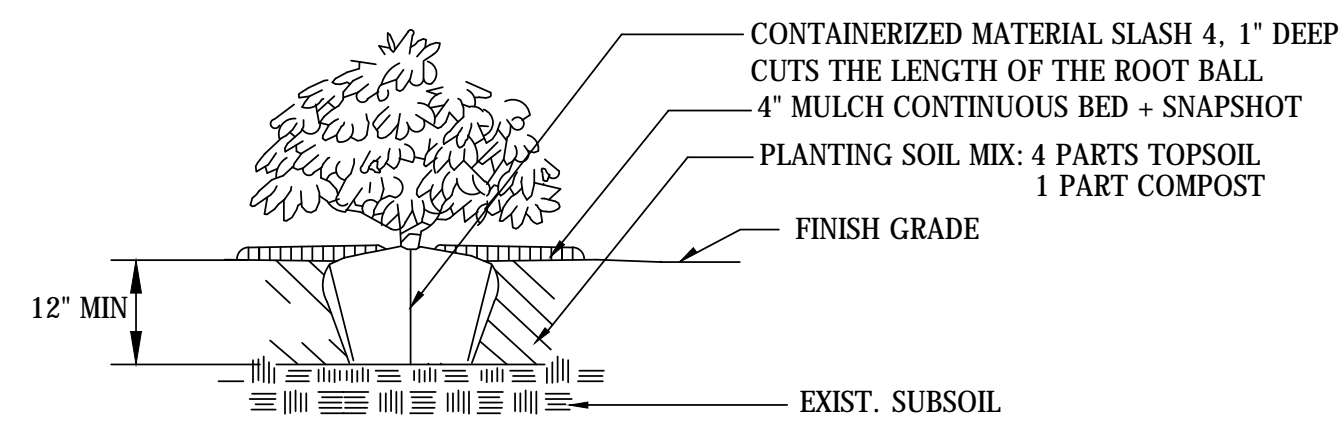
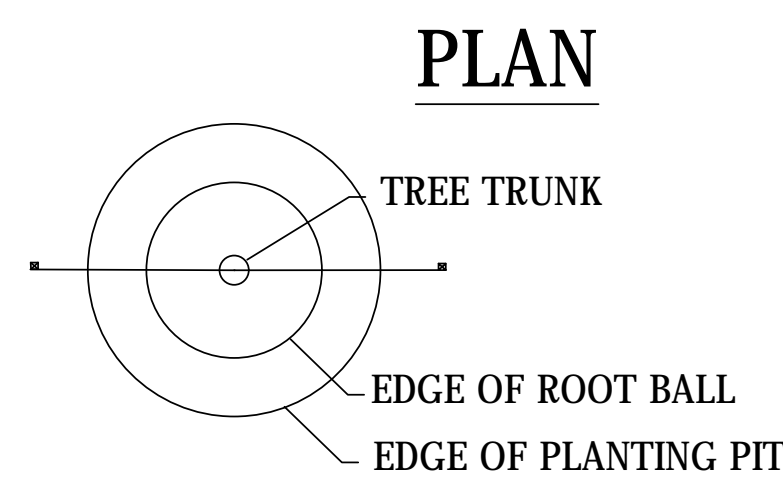




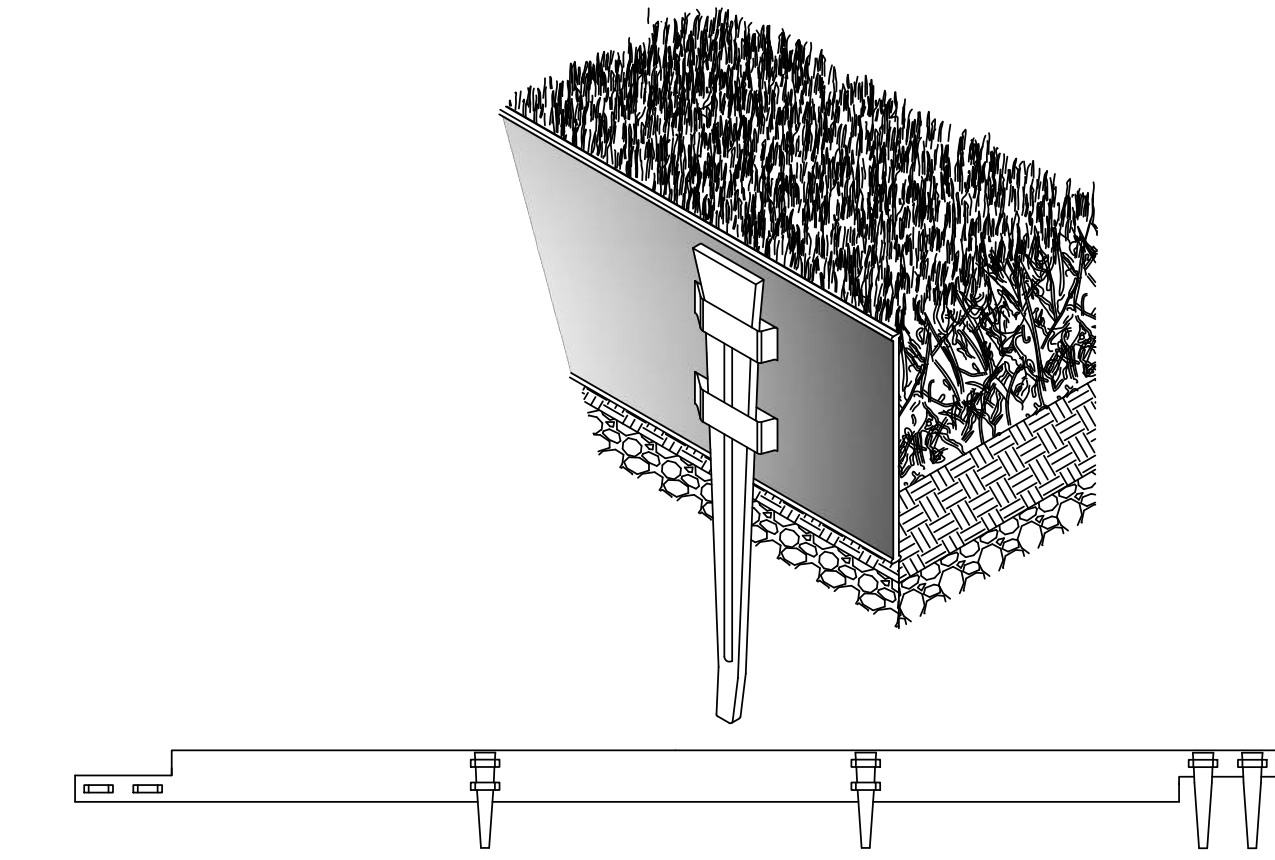
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POTTED PLANTS PLANTING DETAIL  
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SHRUB PLANTING DETAIL  
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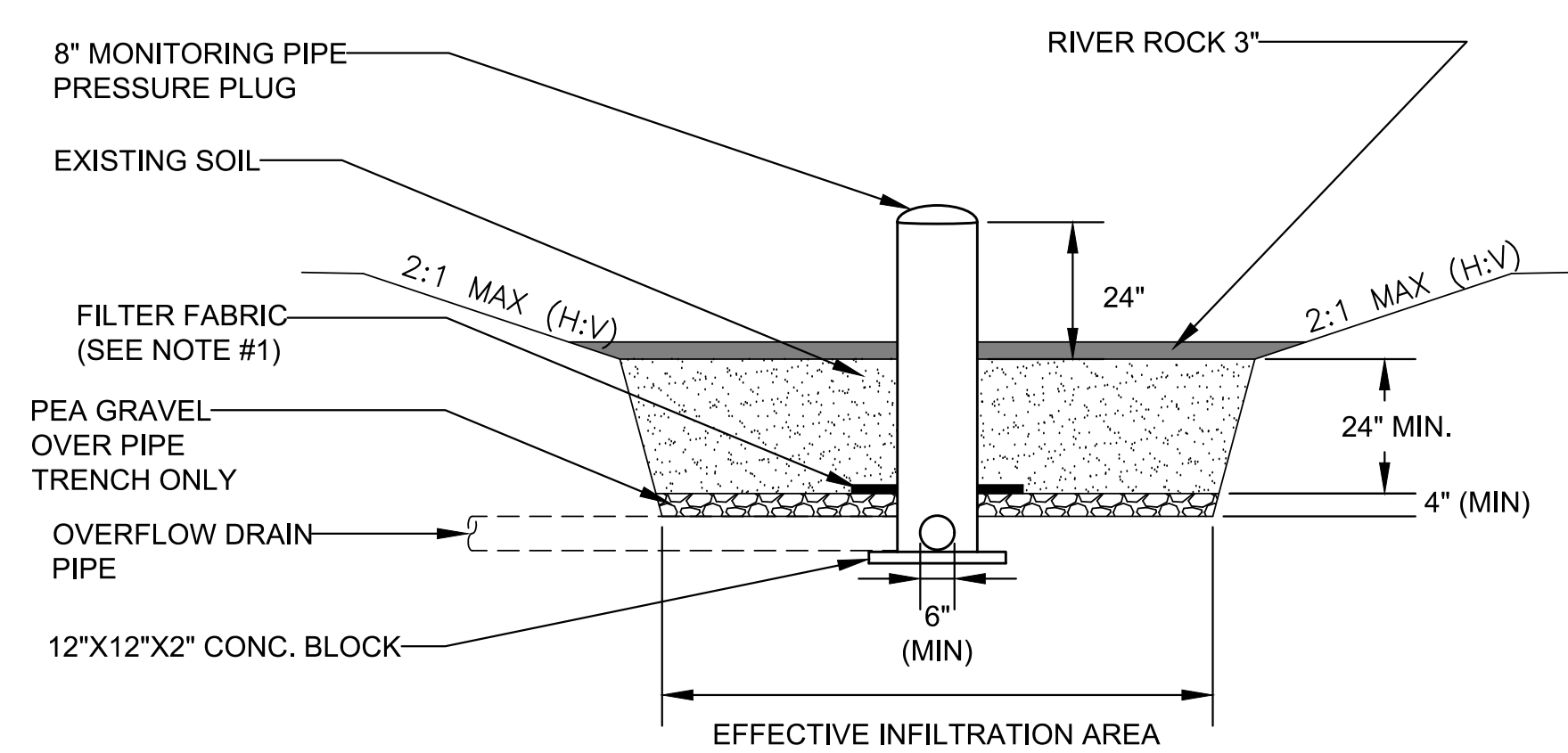


- NOTES:  
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.  
2. ALL DIMENSIONS ARE CONSIDERED TRUE AND REFLECT MANUFACTURER'S SPECIFICATIONS.

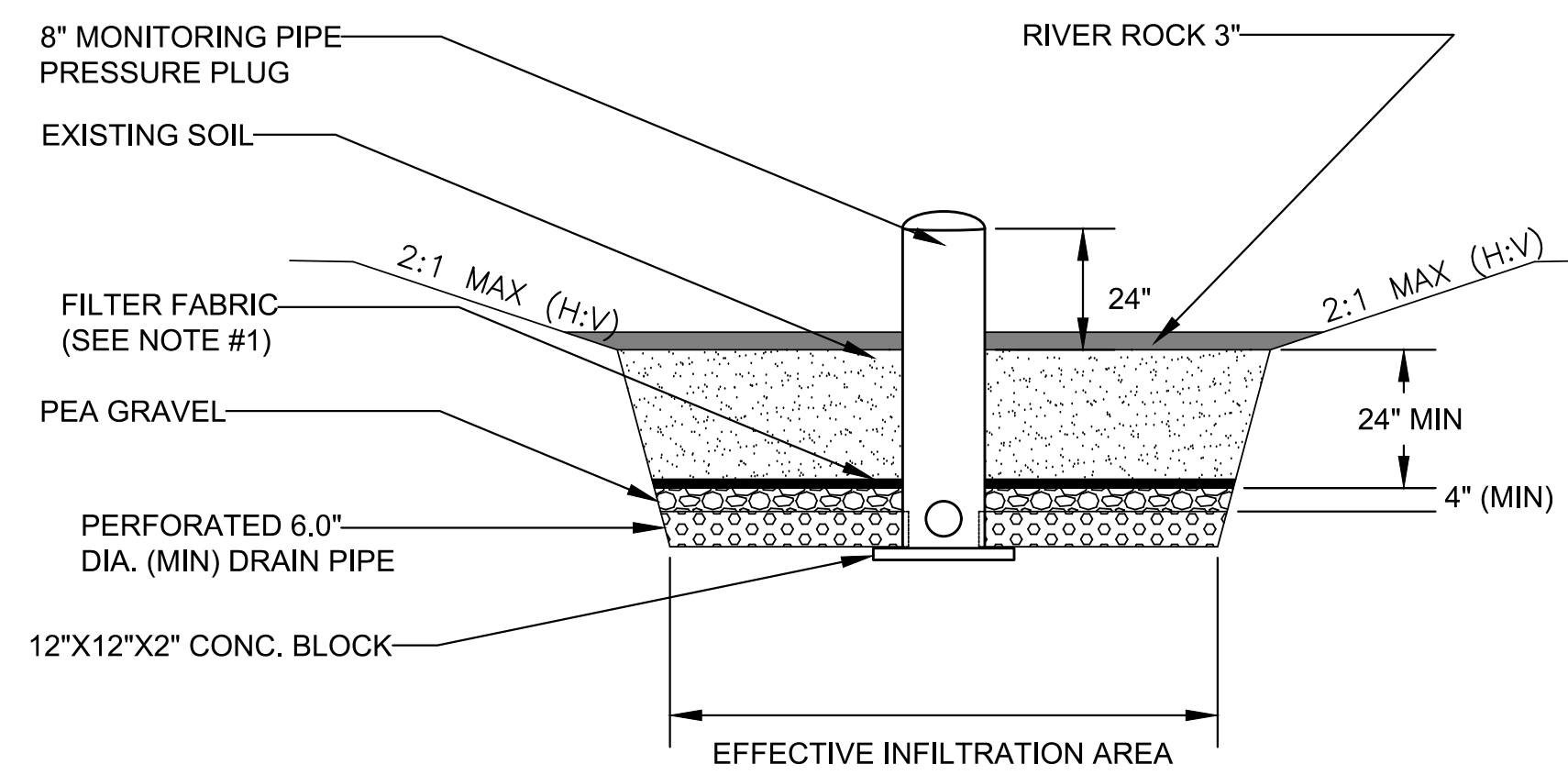
3/16" ALUMINUM EDGING DETAIL  
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NOTES:

- 1 All landscape beds to be edged with 3/16" x 4" x 16" Aluminum Edging by Sure Lok
- 2 All planting beds to receive 12" of imprinted planting soil
- 3 All sod areas to receive 6" imported topsoil/Highland Sod: Varieties included Midnight, Total Eclipse, Absolute, NuGlade or Rugby Kentucky Bluegrasses 12-12-12 fertilizer applied at 1 pound N per 1000 sq ft
- 4 All areas outside of sod limits to receive 4" of salvaged on site topsoil and seed/straw mulch Seed shall be Highway Mix #3 available from La Crosse Seed applied at 7# per 1,000 sq ft/300# per acre
- 5 Bio-Cell in South East corner of project to receive Wis. Dot #80 seed blend applied at 1# per 1,000 sq ft/Nurse crop seeding at 1# per 1,000 sq ft. Install Erosion Mat Class II, Type A
- 6 All planting beds 4" of shredded mulch
- 7 Landscape contractor to provide all maintenance for 30 days after the final vegetation has germinated.
- 8 Seed disturbed areas on south side of bike path with Highway Mix #3



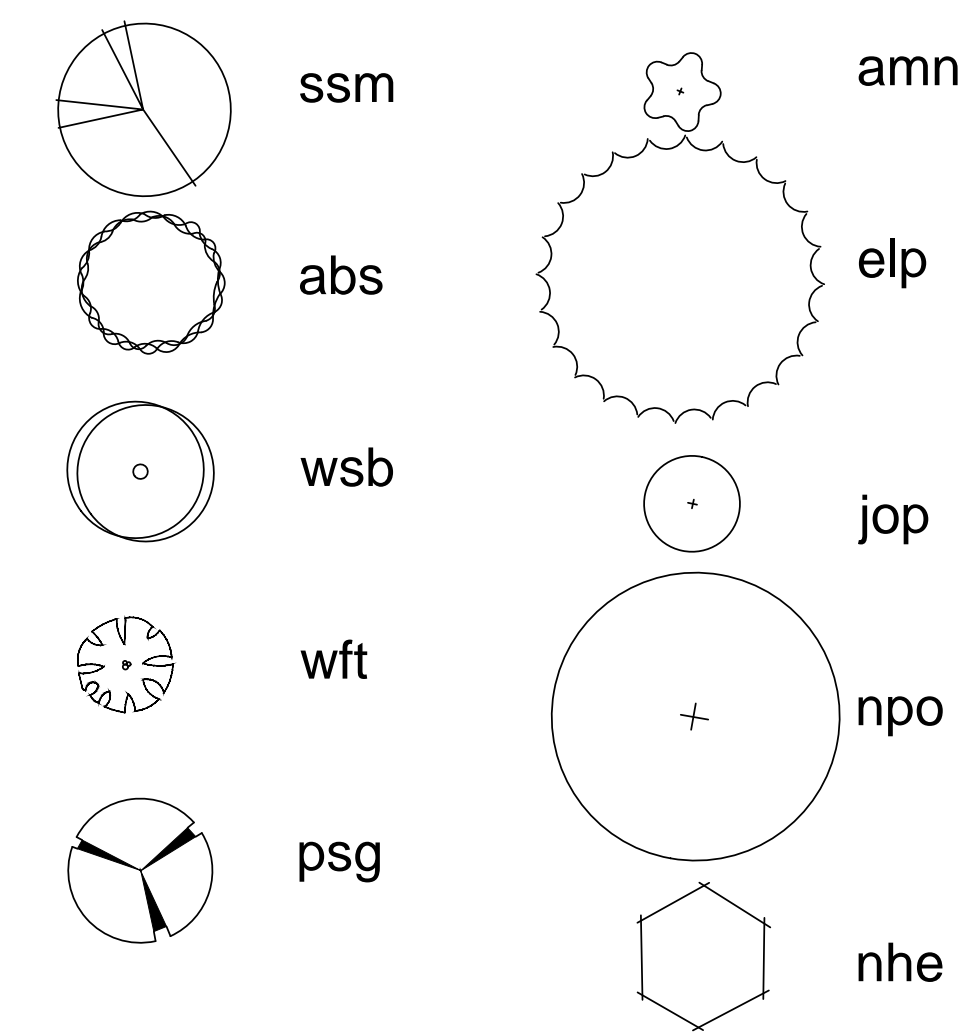
X-S A-A'



X-S B-B'

- NOTES:  
1. GEOTEXTILE FILTER FABRIC TO BE PLACED OVER AND 6\"/>

BIO-FILTER  
NTS



Plant Summary

Quantity	Code Name	Common Name	Scientific Name	Planting Size	Comments
0	ssm	State Street Maple	Acer miyabei 'Morton'	3' B&B	
5	abs	Autumn Brilliance Serviceberry	Amelanchier x grandiflora 'Autumn Brilliance'	2' B&B	
3	wsb	Whitespire Birch	Betula populifolia 'Whitespire'	8-10/2' B&B	
0	wft	White Fringe Tree	Chionanthus virginicus	2' B&B	
1	psg	Princeton Sentry Ginkgo	Ginkgo biloba 'Princeton Sentry'	3' B&B	
0	amn	Ann Magnolia	Magnolia liliiflora x stellata 'Ann'	2' B&B	
2	elp	Exclamation London Planetree	Platanus x acerifolia 'Morton Circle'	3' B&B	
0	jop	Jack Ornamental Pear	Pyrus calleryana 'Jaczam'	2' B&B	
1	npo	Northern Pin Oak	Quercus ellipsoidalis	3' B&B	
3	nhe	New Horizon Elm	Ulmus (japonica x pumila) 'New Horizon'	3' B&B	

Quantity	Code Name	Common Name	Scientific Name	Planting Size	Comments
0	wgb	Wintergreen Boxwood	Buxus microphylla 'Wintergreen'	#5	
0	dfj	Daubs Frosted Juniper	Juniperus x media 'Daubs Frosted'	#5	
0	rsc	Russian Cypress	Microbiota decussata	#5	
0	dns	Dwarf Norway Spruce	Picea abies 'Pumila'	#5	
7	bhs	Black Hills Spruce	Picea glauca densata	6' B&B	
0	ssp	Serbian Spruce	Picea omorika	6' B&B	
0	smp	Sherwoods Compact Mugo Pine	Pinus mugo 'Sherwoods Compact'	#5	
0	ewp	Eastern White Pine	Pinus strobus	6' B&B	
1	dgc	Dark Green Cedar	Thuja occidentalis 'Nigra'	5' B&B	

Quantity	Code Name	Common Name	Scientific Name	Planting Size	Comments
	erg	Eldorado Reed Grass	Calamagrostis acutiflora 'Eldorado'	#1	
	vmg	Variegated Moor Grass	Molina caerulea 'Variegata'	#1	
	ssg	Shenandoah Switch Grass	Panicum virgatum 'Shenandoah'	#1	
	blb	Blue Heaven Little Bluestem	Schizachyrium scoparium 'MinblueA'	#1	
	tdg	Tara Dropseed Grass	Sporobolus heterolepis 'Tara'	#1	

Quantity	Code Name	Common Name	Scientific Name	Planting Size	Comments
	ssy	Strawberry Seduction Yarrow	Achillea millefolium 'Strawberry Seduction'	#1	
	sba	Summer Beauty Allium	Allium tanguticum 'Summer Beauty'	#1	
	bia	Blue Ice Amsonia	Amsonia 'Blue Ice'	#1	
	bvg	Biokovo Geranium	Geranium cantbrigense 'Biokovo'	#1	
	mfg	Max Frei Geranium	Geranium sanguineum 'Max Frei'	#1	
	sgh	Stained Glass Hosta	Hosta 'Stained Glass'	#1	
	fgr	Fireworks Goldenrod	Solidago rugosa 'Fireworks'	#1	

Quantity	Code Name	Common Name	Scientific Name	Planting Size	Comments
	rrb	Rosy Rocket Barberry	Berberis thunbergii 'Rosy Rocket'	#5	
	csf	Citrus Swizzle Forsythia	Forsythia viridissima 'McKCitrine'	#5	
	abh	Annabelle Hydrangea	Hydrangea arborescens	#5	
	qfh	Quick Fire Hydrangea	Hydrangea paniculata 'Bulk'	#5	
	ldn	Little Devil Ninebark	Physocarpus opulifolius 'Donna May'	#5	
	ptt	Paint The Town Shrub Rose	Rosa 'BAltown'	#5	
	tbs	Tor Birchleaf Spirea	Spirea betulifolia 'Tor'	#5	
	fcs	Flowering Choice Spirea	Spirea x bumalda 'Flowering Choice'	#5	
	jfv	Juddi Fragrant Viburnum	Viburnum x Juddii	#5	
	mmw	My Monet Weigela	Weigela florida 'Verwig'	#5	

Bio Plants

Quantity	Common Name	Scientific Name	Planting Size
4 Flats	Switch Grass	Panicum virgatum	32 per flat
2 Flats	New England Aster	Aster novae-angliae	32 per flat
2 Flats	Sweet Black Eyed Susan	Rudbeckia subtomentosa	32 per flat
1 Flat	Wild Beramot	Monarda fistulosa	32 per flat
1 Flat	Stiff Goldenrod	Solidago rigida	32 per flat



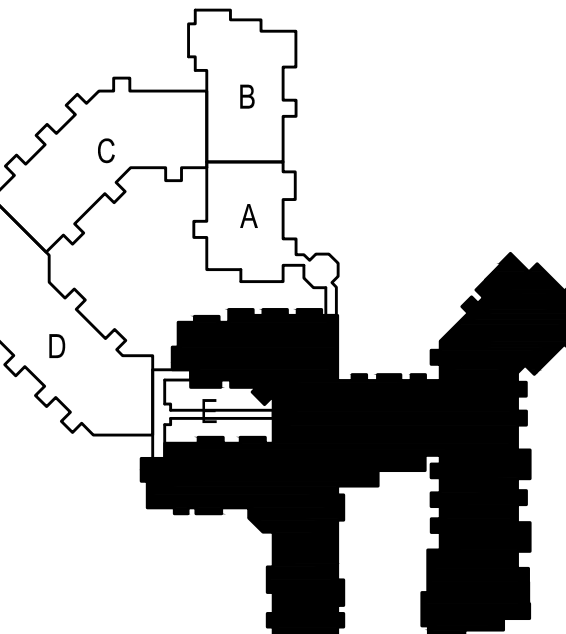
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LANDSCAPING  
DETAILS

Revision	By	Date

Commission No. 11067-002.020  
Prep. by KK  
Checked by DRC

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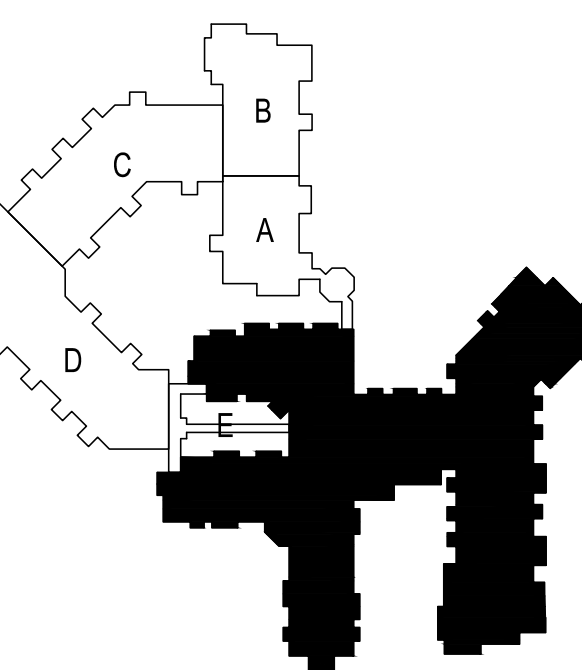
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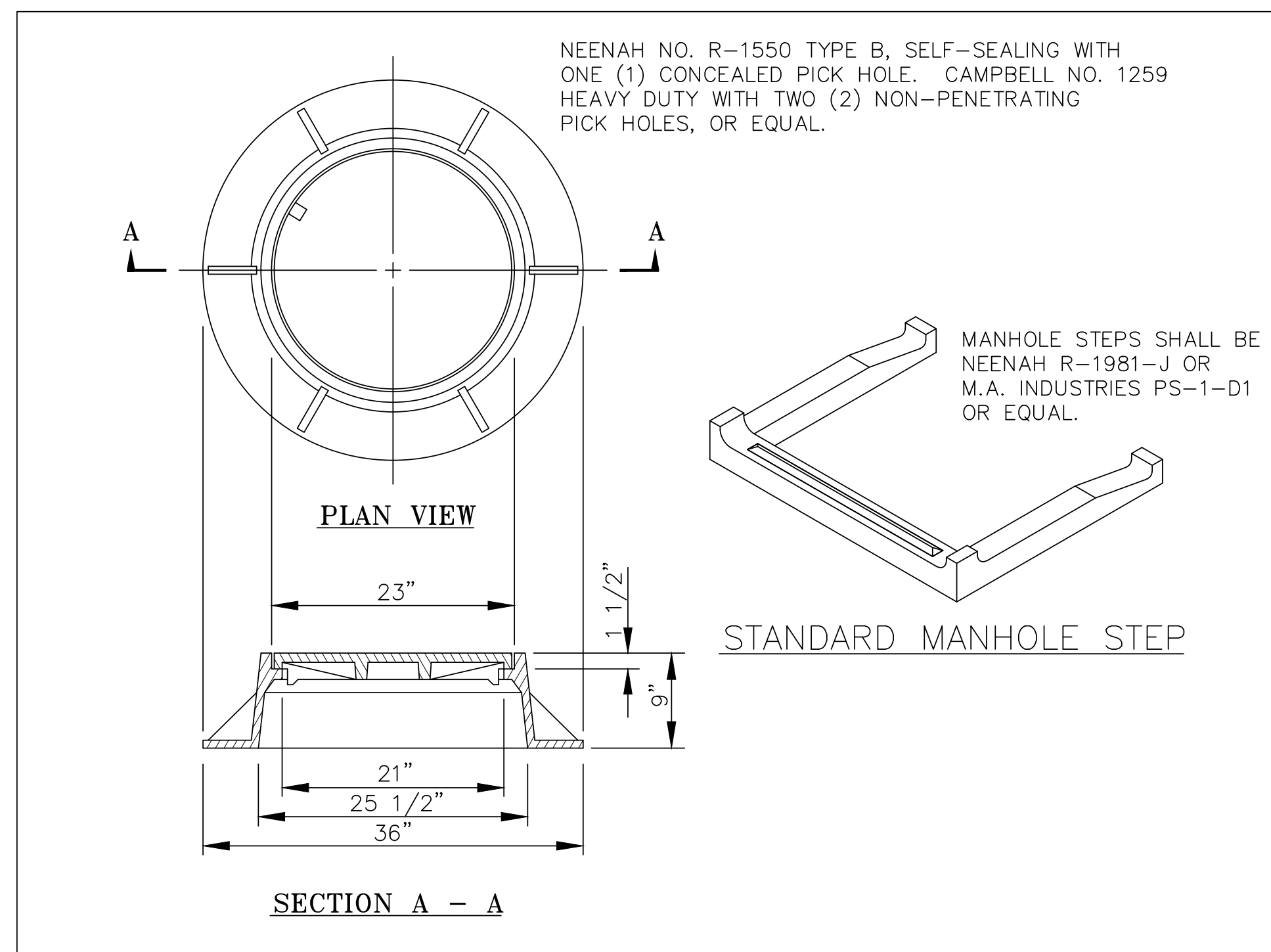




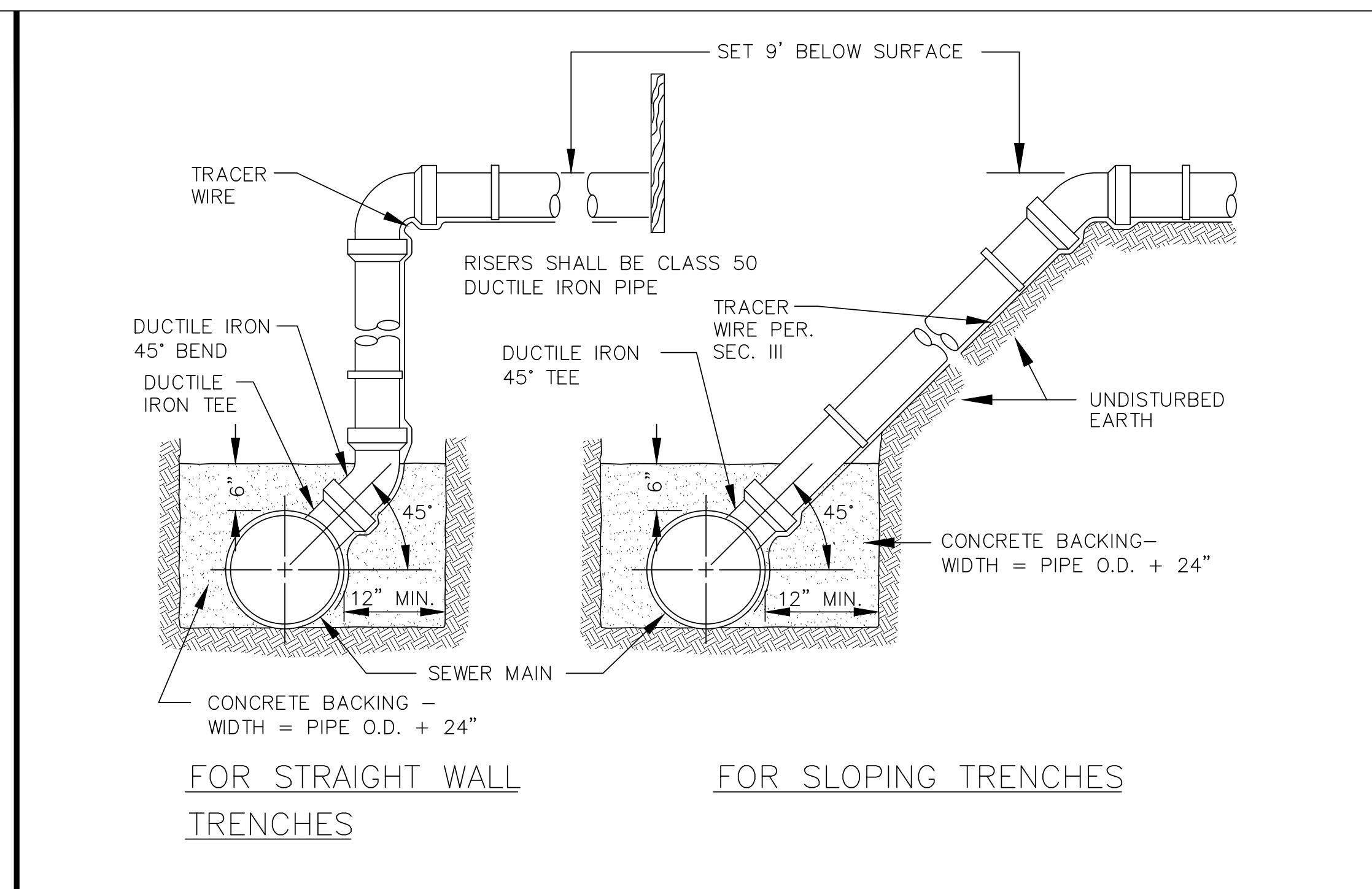


**SANITARY  
SEWER  
DETAILS**

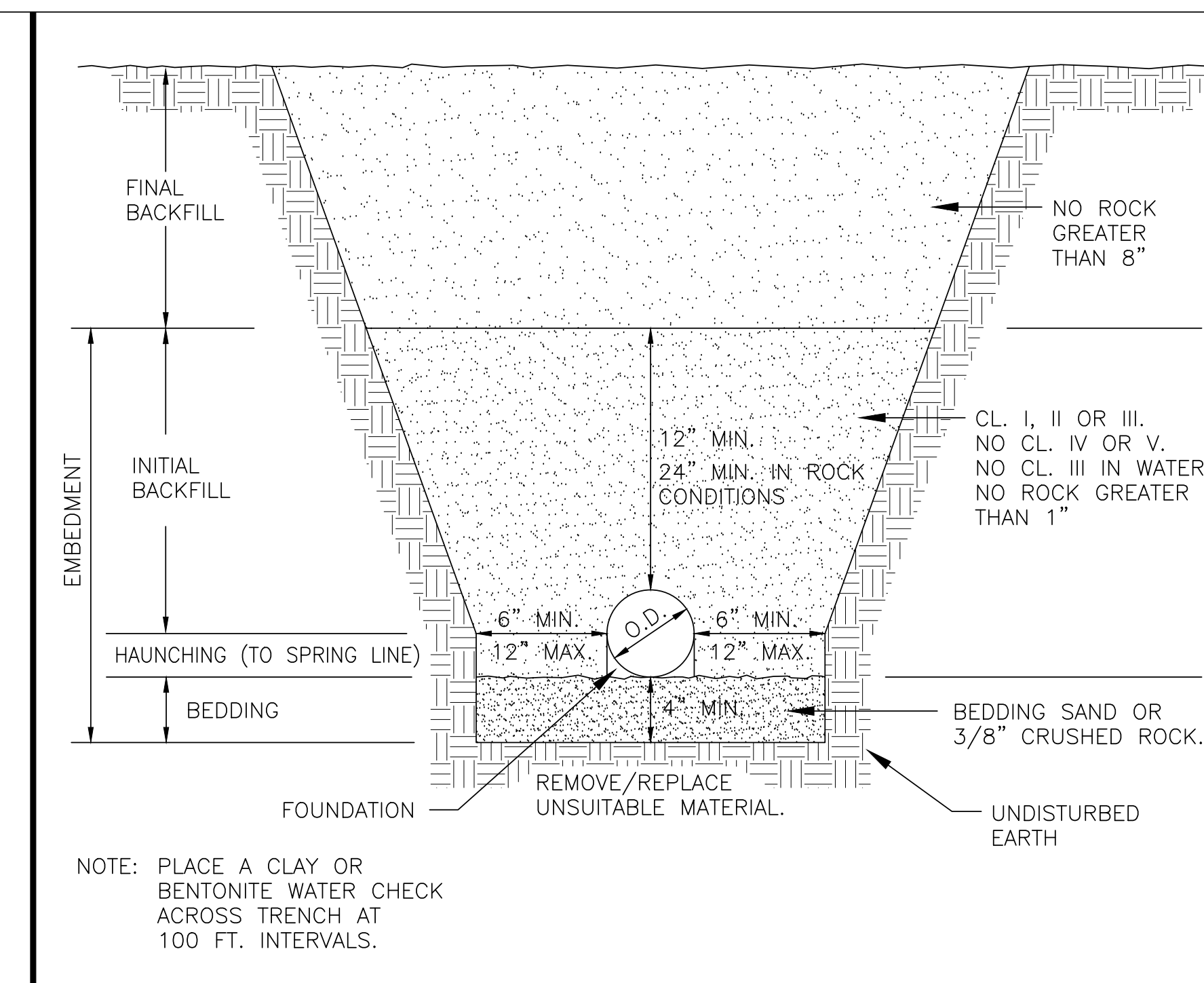
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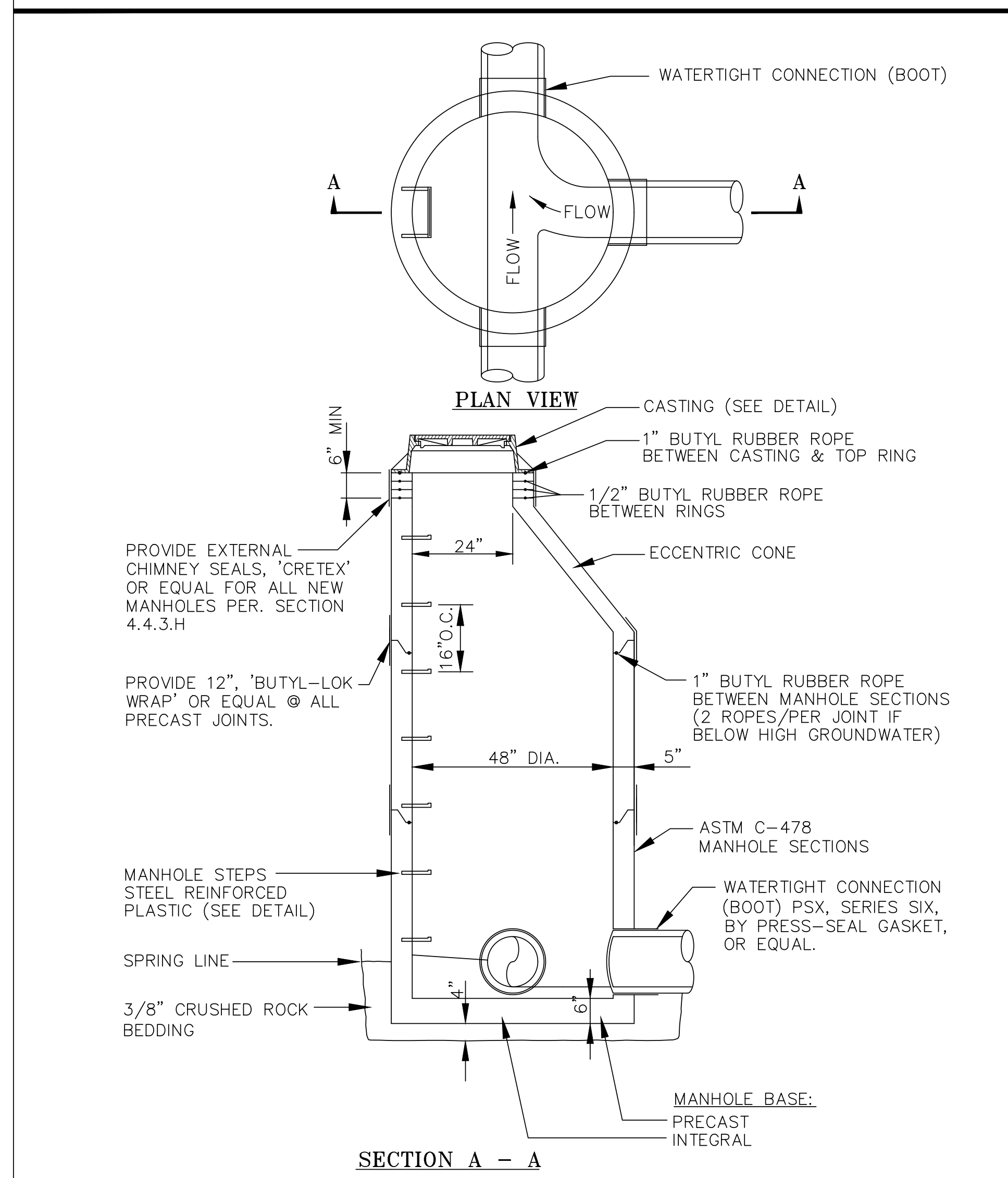
**STANDARD FRAME, COVER, & STEP**  
NO SCALE



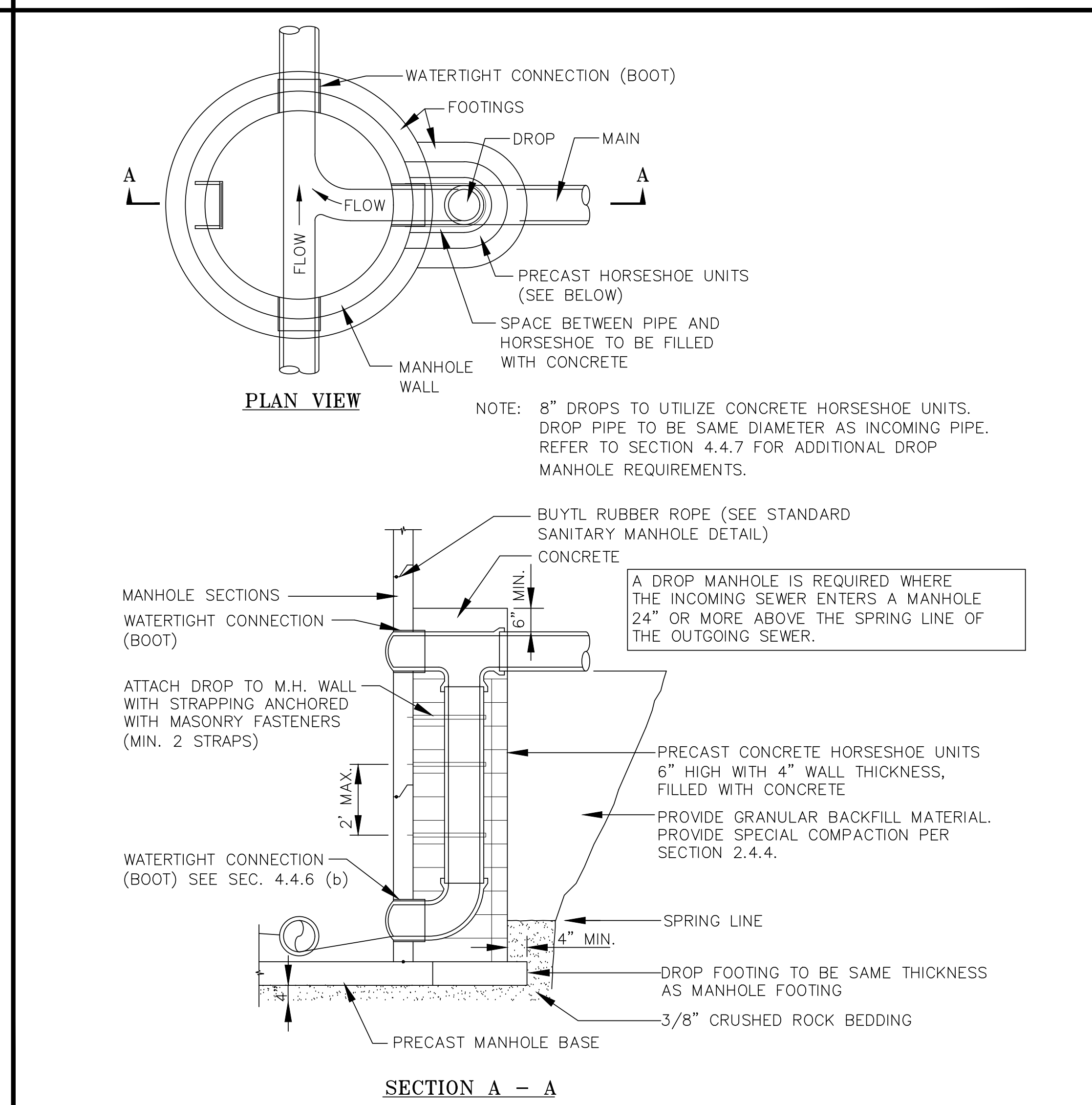
**DETAILS OF RISERS FOR HOUSE CONNECTION**  
NO SCALE



**STANDARD PIPE BEDDING DETAIL**  
NO SCALE



**DETAIL OF STANDARD SANITARY MANHOLE**  
NO SCALE

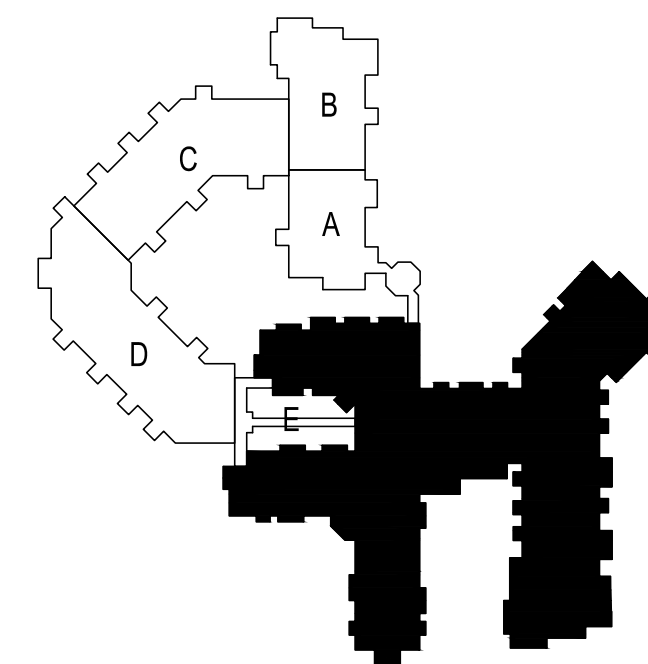


**DETAIL OF DROP MANHOLE**  
NO SCALE

SOIL CLASSIFICATION CHART			
COARSE-GRAINED SOILS			
GW	Well-graded gravel	Gravels	Clean gravels < 5% fines
GP	Poorly graded gravel	More than 50% of coarse fraction retained on #4 sieve	Gravel with fines >12% fines
GM	Silty gravel		
GC	Clayey gravel		
SW	Well-graded sand	Sands	Clean sands < 5% fines
SP	Poorly graded sand	50% or more of coarse fraction passes #4 sieve	Sand with fines >12% fines
SM	Silty sand		
SC	Clayey sand		
FINE-GRAINED SOILS			
CL	Lean clay	Silts and Clays	Inorganic
ML	Silt		
OL	Organic clay/silt	Liquid limit < 50	Organic
CH	Fat clay		
MH	Elastic silt		
OH	Organic clay/silt	Liquid limit > 50	Inorganic
PT	Peat		
PT	Peat		Organic
Soil Classes			
Crushed rock			Class I
Clean coarse grained	SW, SP, GW, GP	<12% passing #200	Class II
Coarse grained with fines	GM, GC, SM, SC	>12% passing #200	Class III
Silty Clay	CL, ML	>30% retained #200	Class III
Fine grained	CL, ML	<30% retained #200	Class IV
	MH, CH, CL, CH, PT		Class V
Use of Soil Classes for Foundation, Embedment and Backfill			
Foundation	4" minimum in rock excavation		
Foundation - no water	Class I, II or III or subcut and use Class I or II		
Foundation - with water	Class I or II or subcut and use Class I or II		
Bedding	4" minimum Bedding Sand (3.24.2) or 3/8" Crushed Rock (3.24.1)		
Embedment - no water	Class I, II or III or replace with Class I, II or III		
Embedment - with water	Class I or II or replace with Class I or II		
Foundation and embedment	No rock > 1", No Class IV or V		
Final Backfill	No rock > 8"		
Embedment includes Bedding, Haunching and Initial Backfill			
Compaction for Foundation, Embedment and Backfill			
Foundation	90% Modified Proctor		
Bedding	90% Modified Proctor		
Haunching	90% Modified Proctor		
Initial Backfill	90% Modified Proctor		
Final Backfill	90% - 95% Modified Proctor		

**SOIL CLASSIFICATION CHARTS**





**STORM SEWER  
DETAILS**

Issue and Revisions: 03/02/2018

**DETAIL OF STANDARD STORM MANHOLE**  
NO SCALE

**DETAIL OF STANDARD STORM MANHOLE FOR PIPES 36\"/>**

**STANDARD PIPE BEDDING DETAIL**  
NO SCALE

**PRECAST CONCRETE CATCH BASIN W/ SUMP**  
NO SCALE

NEENAH NO. R-1550 TYPE B, SELF-SEALING WITH ONE (1) CONCEALED PICK HOLE, CAMPBELL NO. 1259 HEAVY DUTY WITH TWO (2) NON-PENETRATING PICK HOLES, OR EQUAL. GRATED LIDS SHALL BE NEENAH R-2050-C, EJV 1058M1 OR EQUAL. SEE SPECIFICATION FOR OPEN GRATE IN PAVEMENT.

**STANDARD FRAME & COVER**  
NO SCALE

**DETAIL OF CATCH BASIN CASTING**  
NO SCALE

**STANDARD MANHOLE STEP**  
NO SCALE

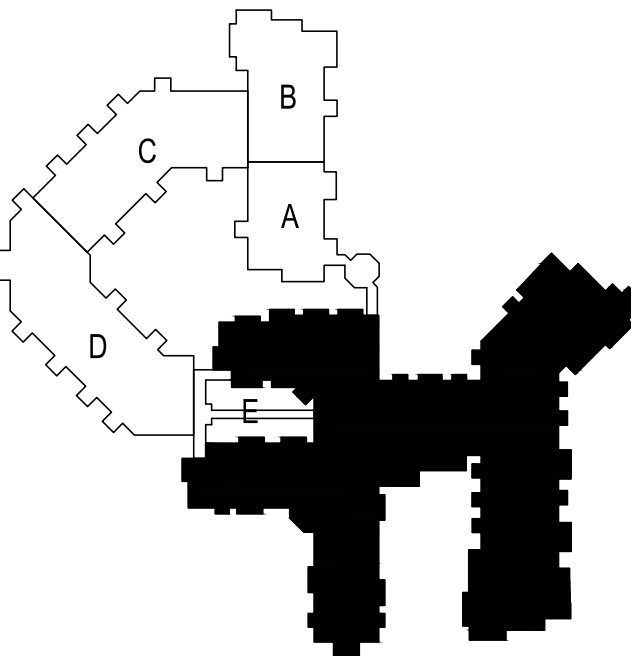
**SOIL CLASSIFICATION CHARTS**

SOIL CLASSIFICATION CHART			
COARSE-GRAINED SOILS			
GW	Well-graded gravel	Gravels More than 50% of coarse fraction retained on #4 sieve	Clean gravels < 5% fines
GP	Poorly graded gravel		Gravel with fines >12% fines
GM	Silty gravel		
GC	Clayey gravel		
SW	Well-graded sand	Sands 50% or more of coarse fraction passes #4 sieve	Clean sands <5% fines
SP	Poorly graded sand		Sand with fines >12% fines
SM	Silty sand		
SC	Clayey sand		
FINE-GRAINED SOILS			
CL	Lean clay	Silts and Clays Liquid limit <50	Inorganic
ML	Silt		Organic
OL	Organic clay/silt	Liquid limit >50	Inorganic
CH	Fat clay		Organic
MH	Elastic silt		
OH	Organic clay/silt		
PT	Peat		
Soil Classes			
Crushed rock			Class I
Clean coarse grained	SW, SP, GW, GP	<12% passing #200	Class II
Coarse grained with fines	GM, GC, SM, SC	>12% passing #200	Class III
Silty Clay	CL, ML	>30% retained #200	Class III
Fine grained	CL, ML	<30% retained #200	Class IV
	MH, CH, CL, CH, PT		Class V
Use of Soil Classes for Foundation, Embedment and Backfill			
Foundation	4" minimum in rock excavation		
Foundation - no water	Class I, II or III or subcut and use Class I or II		
Foundation - with water	Class I or II or subcut and use Class I or II		
Bedding	4" minimum Bedding Sand (3.24.2) or 3/8" Crushed Rock (3.24.1)		
Embedment - no water	Class I, II or III or replace with Class I, II or III		
Embedment - with water	Class I or II or replace with Class I or II		
Foundation and embedment	No rock > 1", No Class IV or V		
Final Backfill	No rock > 8"		
Embedment includes Bedding, Haunching and Initial Backfill			
Compaction for Foundation, Embedment and Backfill			
Foundation	90% Modified Proctor		
Bedding	90% Modified Proctor		
Haunching	90% Modified Proctor		
Initial Backfill	90% Modified Proctor		
Final Backfill	90% - 95% Modified Proctor		









**RESTRAINED SLIP JOINTS**  
DIP-EBBA IRON MEGALUG SERIES 1700, OR EQUAL  
PVC-EBBA IRON MEGALUG SERIES 1500, OR EQUAL

**Dead End**

Pipe Size	Restrained Lengths, L (ft.)	
	PVC	DIP
4	23	29
6	33	41
8	43	53
10	52	64
12	62	76

**Vertical Offset**

Pipe Size	Restrained Lengths, L (ft.)	
	45 degree	
	PVC	DIP
4	10	12
6	14	17
8	18	22
10	22	27
12	26	32

**Horizontal Bend**

Pipe Size	Restrained Lengths, L (ft.)	
	90 degree	
	PVC	DIP
6	11	12
8	15	16
10	18	19
12	21	22

**Reducer**

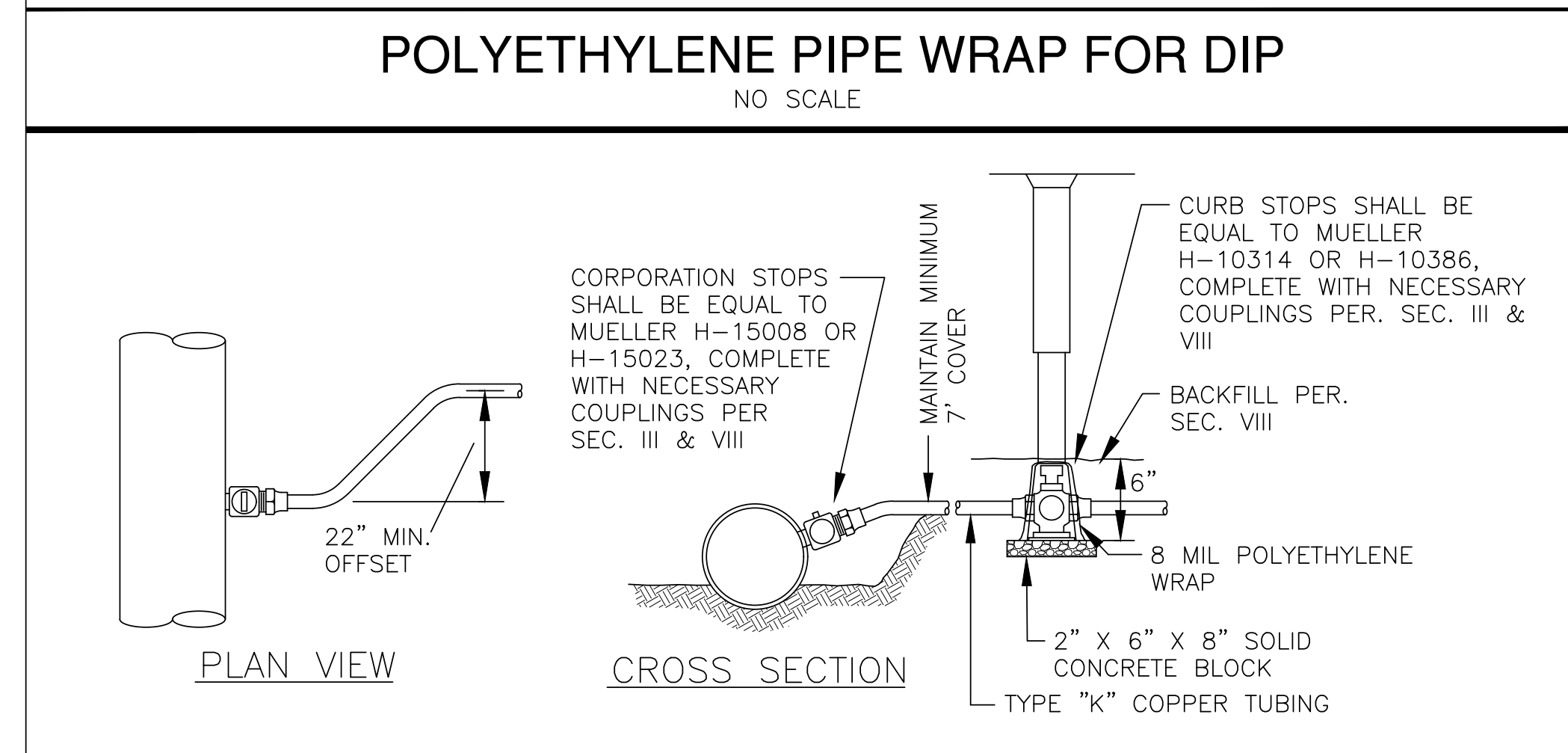
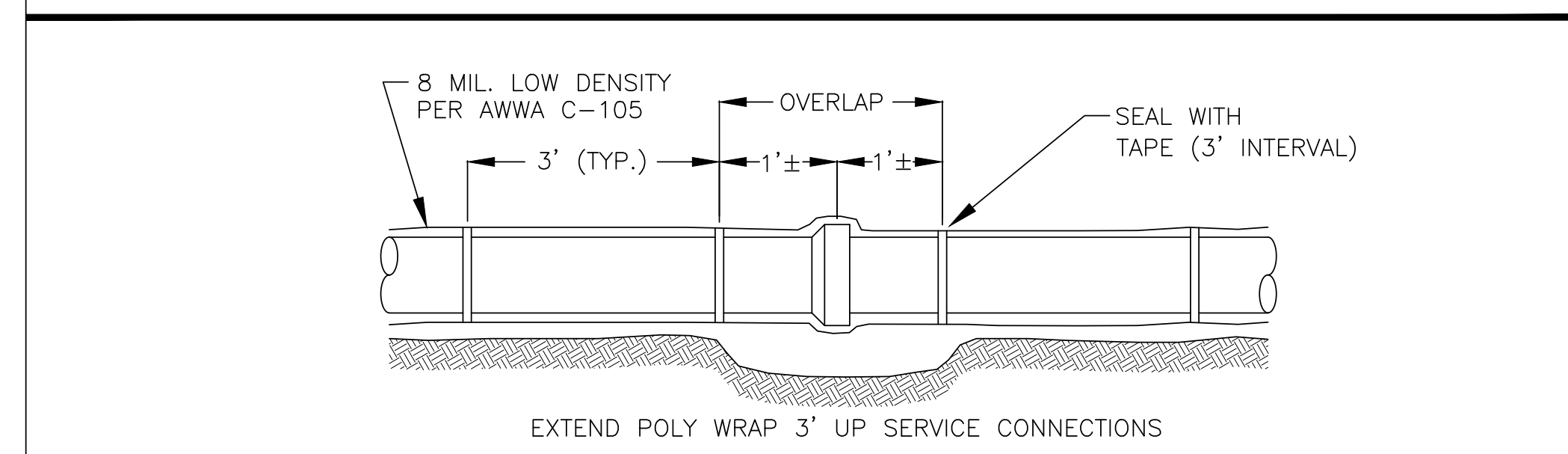
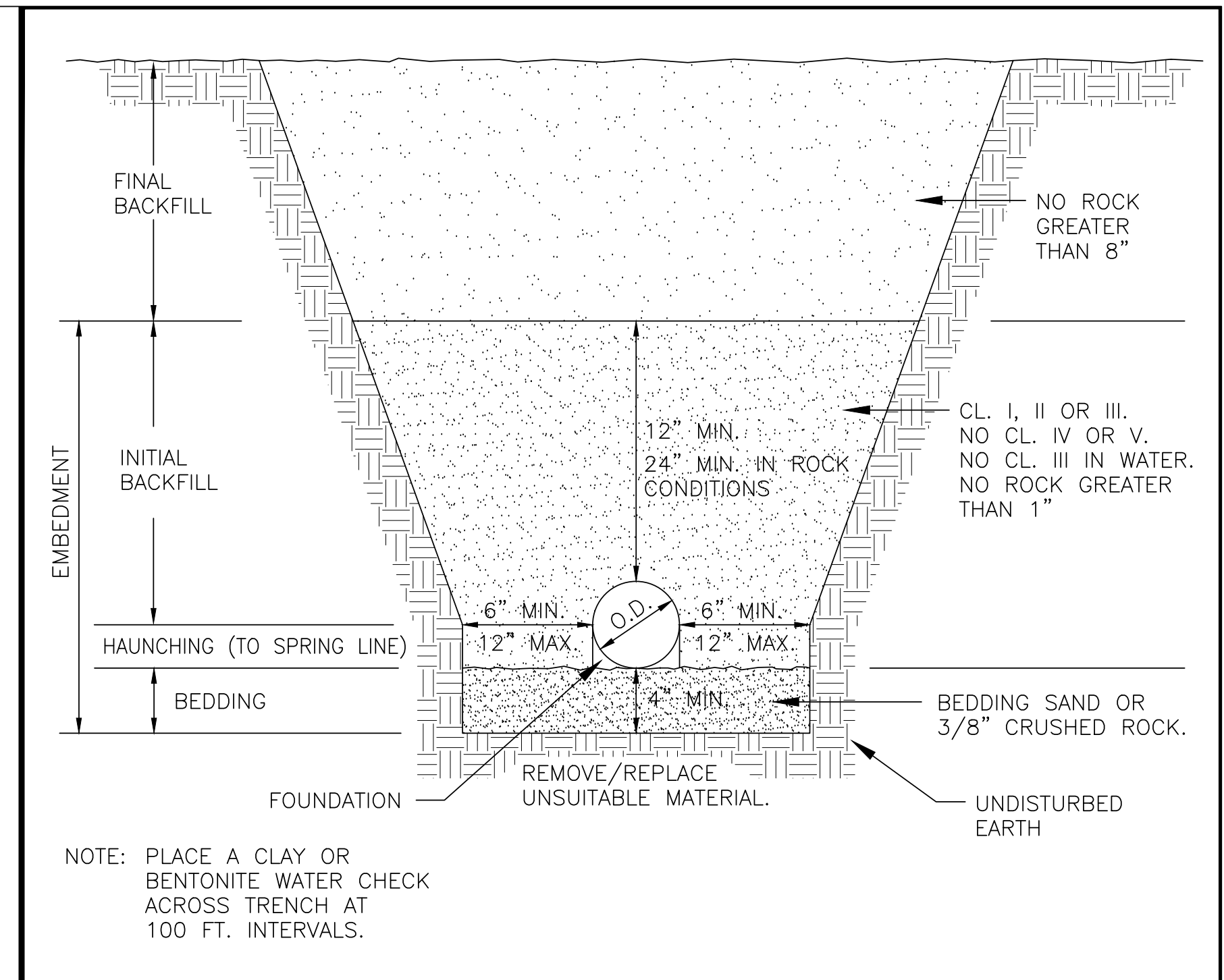
Pipe Size	Restrained Lengths, L (ft.)	Restrained Lengths, L (ft.)	
		Large	Small
		PVC	DIP
6	4	17	21
8	4	31	38
8	6	18	23
10	6	32	40
10	8	18	22
12	8	33	41
12	10	18	23

**TEE - TABLE 1**

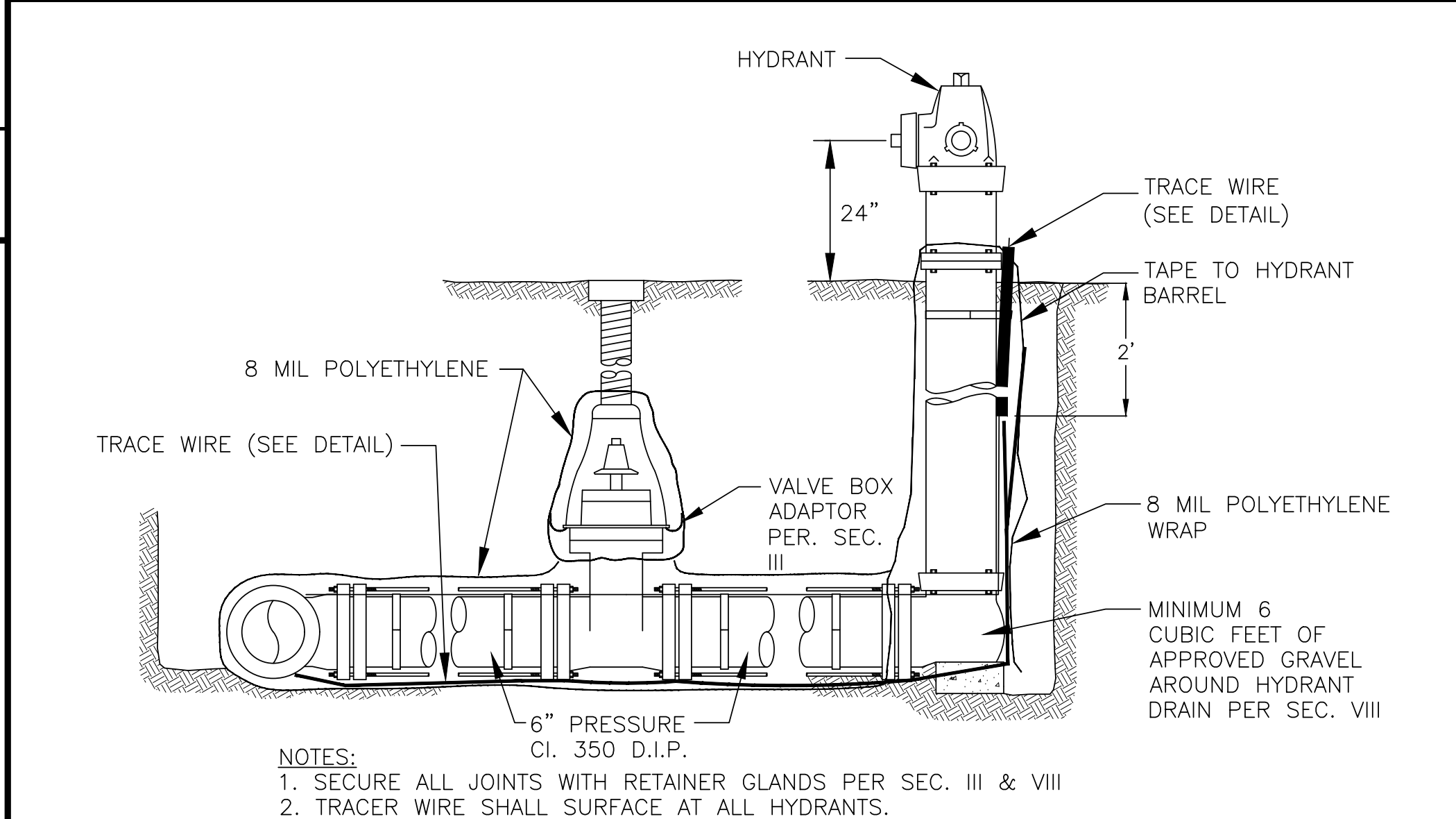
Pipe Size	Restrained Lengths				
	PVC		DIP		
Run	Branch	Lr (ft.)	b (ft.)	Lr (ft.)	b (ft.)
4	4	4	1	4	1
6	4	4	1	4	1
6	6	5	3	5	4
8	4	4	1	4	1
8	6	4	2	4	2
8	8	6	7	6	9
10	4	4	1	4	1
10	6	4	1	4	1
10	8	5	6	5	7
10	10	7	10	7	12
12	6	4	1	4	1
12	8	5	1	5	1
12	10	7	1	7	2
12	12	9	7	9	9

**NOTES ABOUT TABLES:**  
THESE TABLES ARE BASED UPON PRODUCT SOFTWARE DEVELOPED BY EBBA IRON, INC. AND ARE CALCULATED BASED ON THE FOLLOWING ASSUMPTIONS:  
1. THE SOIL TYPES ARE SILTY LOAM (ML) OR BETTER. INORGANIC SILTS, FINE SANDS, CLAYS (NATIVE SOILS).  
2. SAFETY FACTOR, 1.5:1  
3. TRENCH TYPE 4.  
4. DEPTH OF BURY, 7 FEET OF COVER.  
5. INTERNAL PRESSURE, 150 PSI TEST PRESSURE.  
FOR OTHER PIPE SIZES OR CONDITIONS, CONTACT THE ENGINEER FOR RESTRAINED LENGTHS REQUIRED.

**CONSTRUCTION NOTES:**  
1. IF LESS THAN FULL LENGTH PIPE ADJACENT TO FITTING, RESTRAIN ALL JOINTS.  
2. ALL FITTINGS SHALL BE RODDED OR CONNECTED TO THE PIPE WITH AN APPROVED JOINT RESTRAINT. RODS SHALL BE STAINLESS STEEL AND A MINIMUM OF 3/4" IN DIAMETER.  
3. ALL JOINT RESTRAINTS, DIP PIPE & FITTINGS SHALL BE WRAPPED WITH 8 MIL POLYETHYLENE.



**TABLE 1 Minimum Restrained Lengths For Fittings (L)**  
NO SCALE



**SOIL CLASSIFICATION CHARTS**











