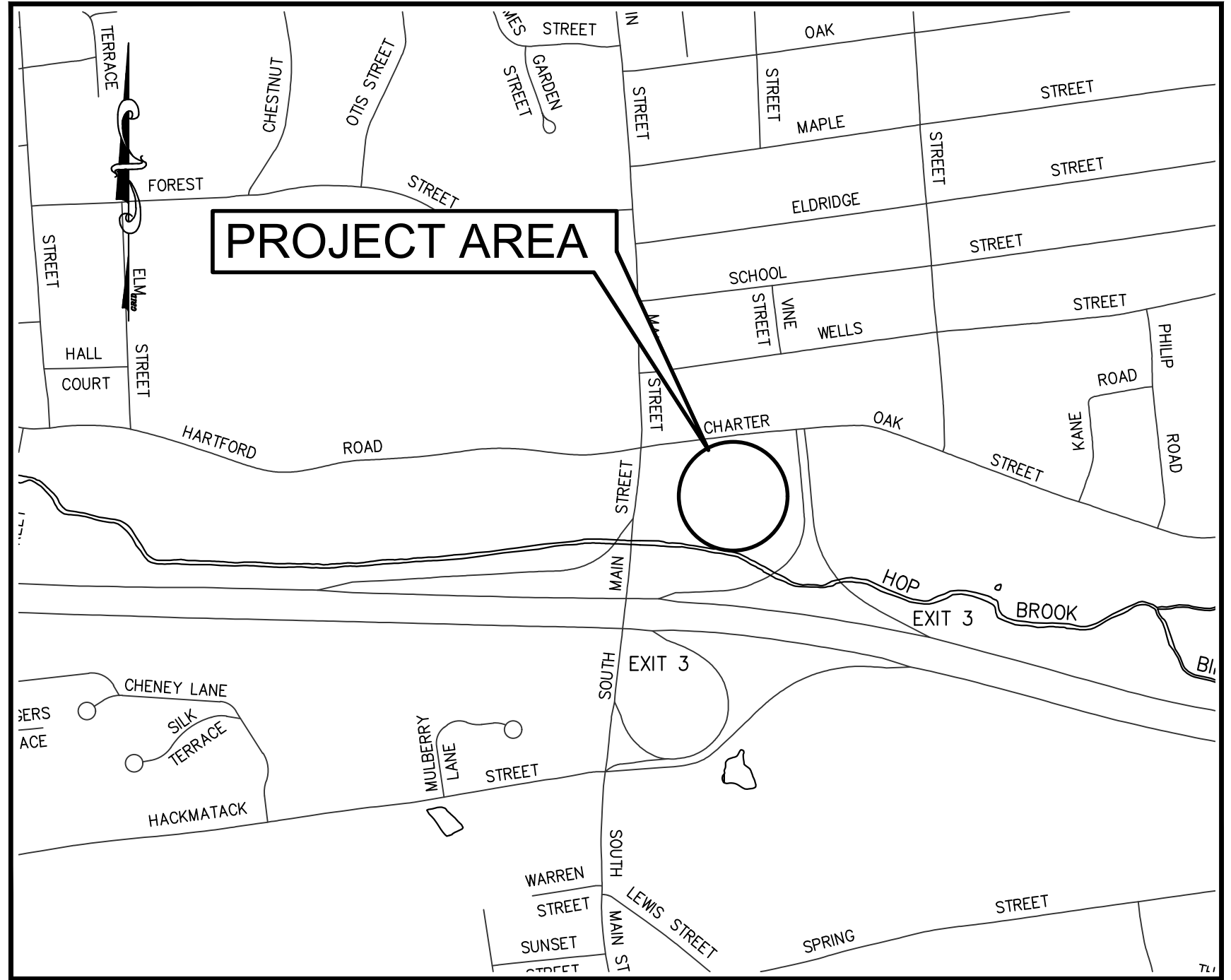


LOCATION MAP
1" = 1500'

TOWN OF MANCHESTER

PUBLIC WORKS DEPARTMENT

ENGINEERING DIVISION



SITE MAP
1" = 600'

PARK IMPROVEMENTS

CHARTER OAK PARK WEST

APRIL 2024

DESIGN STANDARD : TOWN OF MANCHESTER PUBLIC IMPROVEMENT STANDARDS, EFFECTIVE DATE OCTOBER 31, 2020, AS AMENDED

DATUMS : HORIZONTAL DATUM: TOWN OF MANCHESTER CONTROL NETWORK (NAD83 AS ESTABLISHED IN 1998)
VERTICAL DATUM: TOWN OF MANCHESTER CONTROL NETWORK (NAVD88 USING GEOID 96)

STANDARD SPECIFICATIONS : SEE CONTRACT DOCUMENTS

DESIGN SCALES : PLAN: 1" = 30'
OTHER SCALES AS NOTED

LIST OF DRAWINGS	
SHEET NO.	DESCRIPTION
1	COVER SHEET
2	GENERAL LOCATION SURVEY - EXISTING CONDITIONS PLAN
3	TYPICAL SECTIONS AND NOTES
4	DEMOLITION PLAN
5	SITE LAYOUT PLAN
6	GRADING PLAN
7	DRAINAGE AND UTILITY PLAN
8	PAVEMENT MARKINGS AND SIGNING PLAN
9	LANDSCAPING AND EROSION CONTROL PLAN
10	FIELD MARKING PLAN
11-17	SITE DETAILS
18	UTILITY BUILDING GENERAL PLAN
SE1-SE3	ELECTRICAL PLANS AND DETAILS
MP1-MP2	UTILITY BUILDING MECHANICAL PLANS AND SPECIFICATIONS

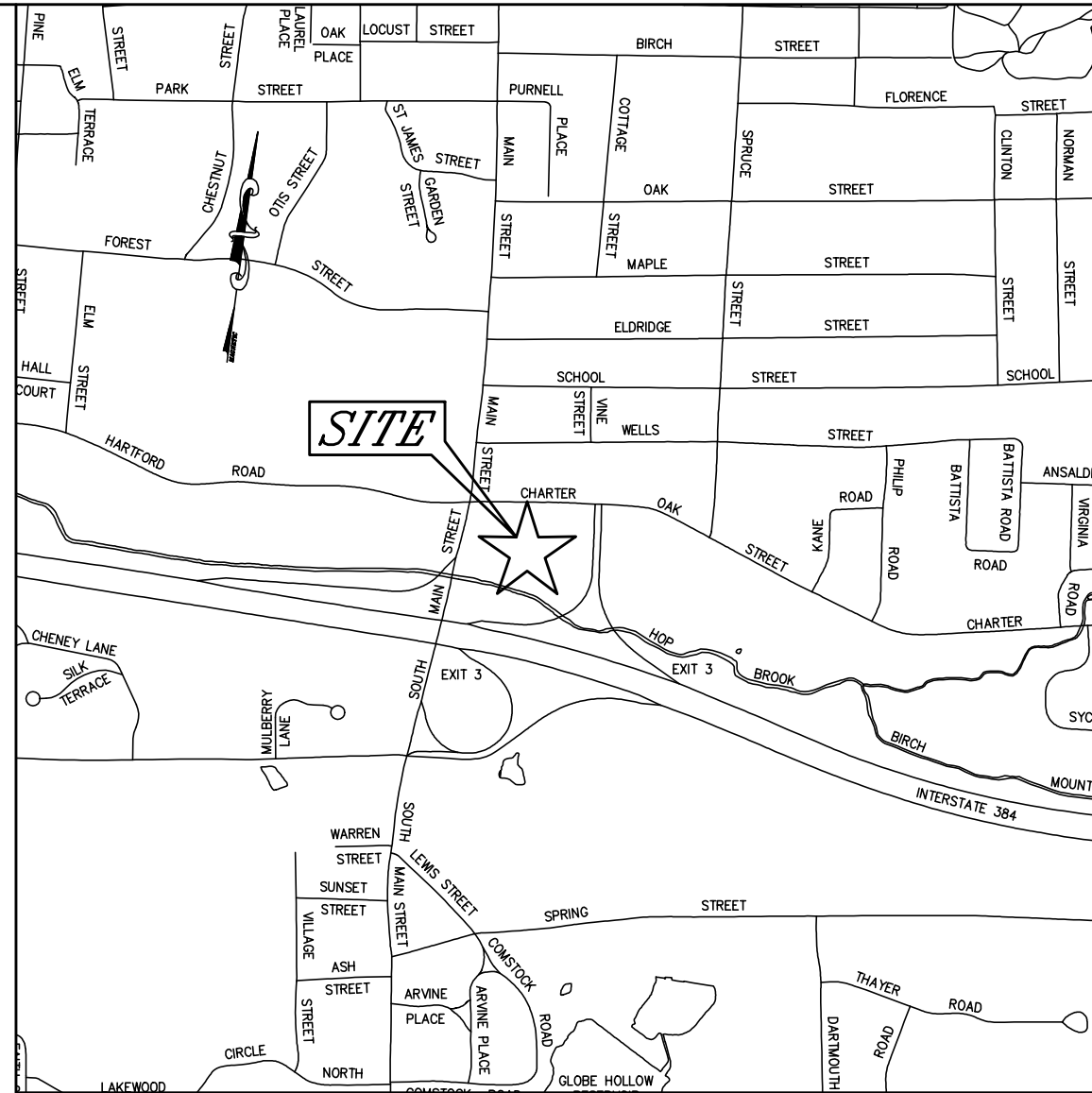
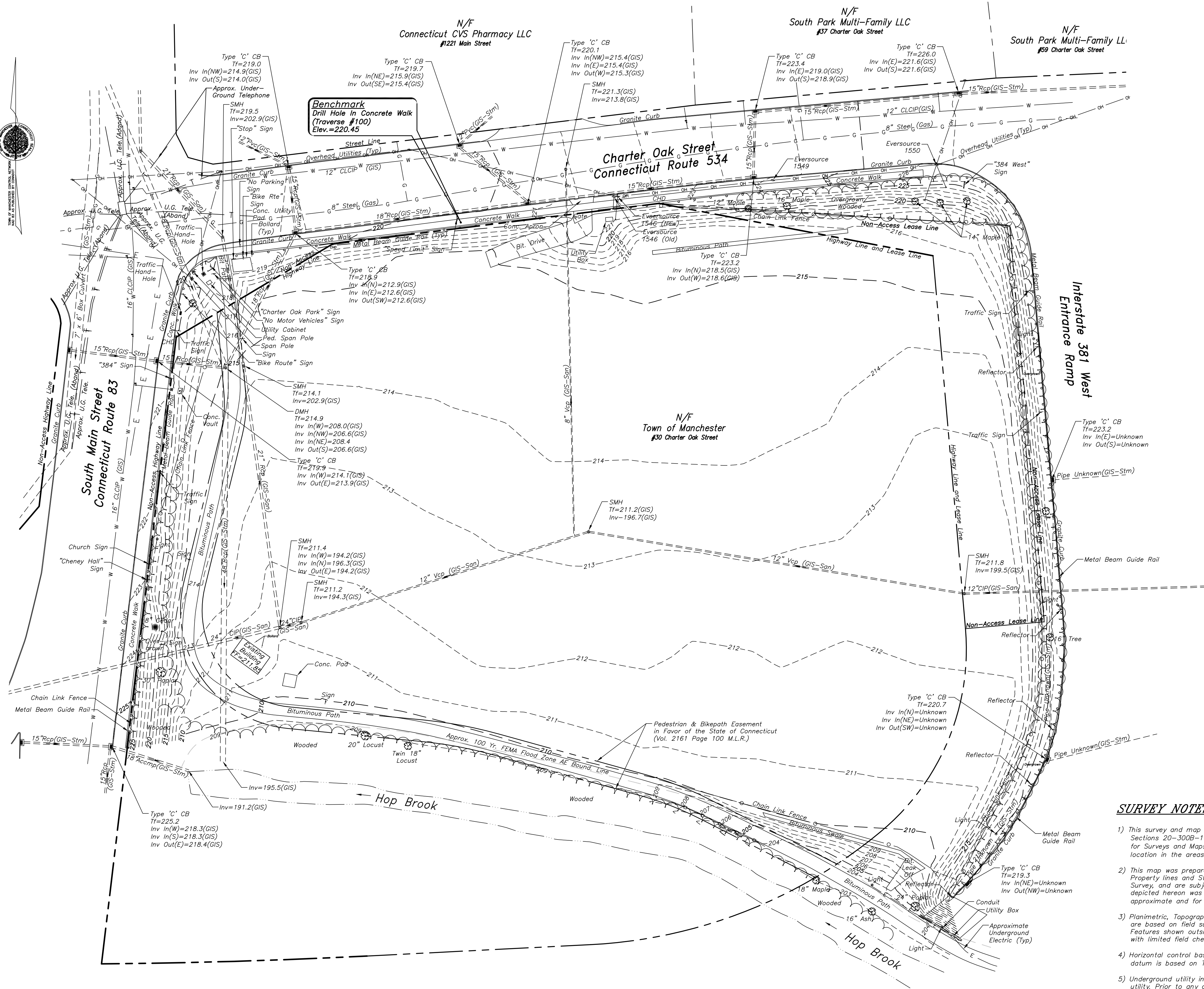
CTDOT STANDARD DRAWINGS	
SHEET NO.	DESCRIPTION
HW0813-02	STONE CURBING
HW0921-01	CONCRETE SIDEWALKS
HW0922-01	BITUMINOUS CONCRETE SIDEWALK AND BITUMINOUS CONCRETE DRIVEWAY
TR-1208-01	SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS
TR-1208-02	METAL SIGN POSTS AND SIGN MOUNTING DETAILS
TR-1210-04	PAVEMENT MARKINGS, LINES AND SYMBOLS
	CONCRETE SIDEWALK RAMPS SHEET 8 OF 11
	ENCROACHMENT PERMIT PAVEMENT REPAIR
	TRENCH FOR PIPES OR STRUCTURES LESS THAN 6"

DESIGNED BY:
TOWN OF MANCHESTER
ENGINEERING DIVISION

JEFF LAMALVA
TOWN ENGINEER
P.E. NO. 20967

MAP REFERENCES:

- 1) "Right of Way Map Town of Manchester Interstate 84 From Main Street to the Bolton Town Line, Sheet 1 of 7, Number 76-16, Scale: 1"=80', Dated: January 1977, By: Connecticut Department of Transportation Bureau of Highways"
(T.O.M. Engineering Map #65/02)
- 2) "Right of Way Survey Town of Manchester Map Showing Easement Acquired From Town of Manchester By The State of Connecticut Department of Transportation Pedestrian Walkway and Bikepath, Scale: 1:5000m, By: The Bureau of Engineering and Highway Operations"
(T.O.M. Town Clerk Map #1233)
- 3) "Lease Sketch Town of Manchester Showing Land Leased to Town of Manchester by the State of Connecticut Department of Transportation Interstate Route 384, Project No. 76-184, Scale: 1"=40', Dated December 2019, By: Connecticut DOT Bureau of Engineering and Construction"



LOCATION MAP
Scale: 1"=1000'



TOWN OF MANCHESTER
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
494 MAIN STREET - P.O. BOX 191
MANCHESTER, CT 06045-0191

LEGEND

	WETLAND BOUNDARY		LIGHT POLE
	RETAINING WALL		DECIDUOUS TREE
	GUIDE RAIL		SANITARY MANHOLE
	STONE WALL		CATCH BASIN
	STOCKADE FENCE		CULVERT END
	WIRE FENCE		HYDRANT
	CHAIN LINK FENCE		CULB STOP
	PROPERTY LINE		WATER VALVE
	RAILROAD TRACKS		BUTTERFLY VALVE
	EROSION CONTROL		BLOW OFF
	CONCRETE MONUMENT		SIGN
	GRANITE MONUMENT		DOUBLE POST SIGN
	IRON PIPE		MAIL BOX
	IRON ROD		BOLLARD
	CONTROL POINT		CONTROLLER CABINET
	DRILL HOLE		GAS GATE
	UTILITY POLE		TELEPHONE BOX
	UTILITY POLE WITH LIGHT		WETLAND FLAG
	TRAFFIC SPAN POLE		GATV TUBE
	ELECTRIC BOX		

PROJECT NUMBER
2021078

FILENAME
2021078BASE.DWG

NO.	DATE	FILE
-	03/15/24	PZC PERMIT SUBMISSION

DRAWN BY: MAW
CHECKED BY: DTS
RELEASED BY: DTS

DRAWING SCALE
HORIZONTAL: 1" = 40' VERTICAL: NONE
OR AS NOTED
40 20 0 40
GRAPHIC SCALE

DATUM
HORIZONTAL: NAD83 VERTICAL: NAVD88

PROJECT LOCATION
**CHARTER OAK STREET
MANCHESTER, CT**

PROJECT TITLE
**PARK IMPROVEMENTS
CHARTER OAK WEST**

SHEET TITLE
**GENERAL LOCATION SURVEY
EXISTING CONDITIONS PLAN**

SHEET NUMBER

2 of 18

SURVEY NOTES:

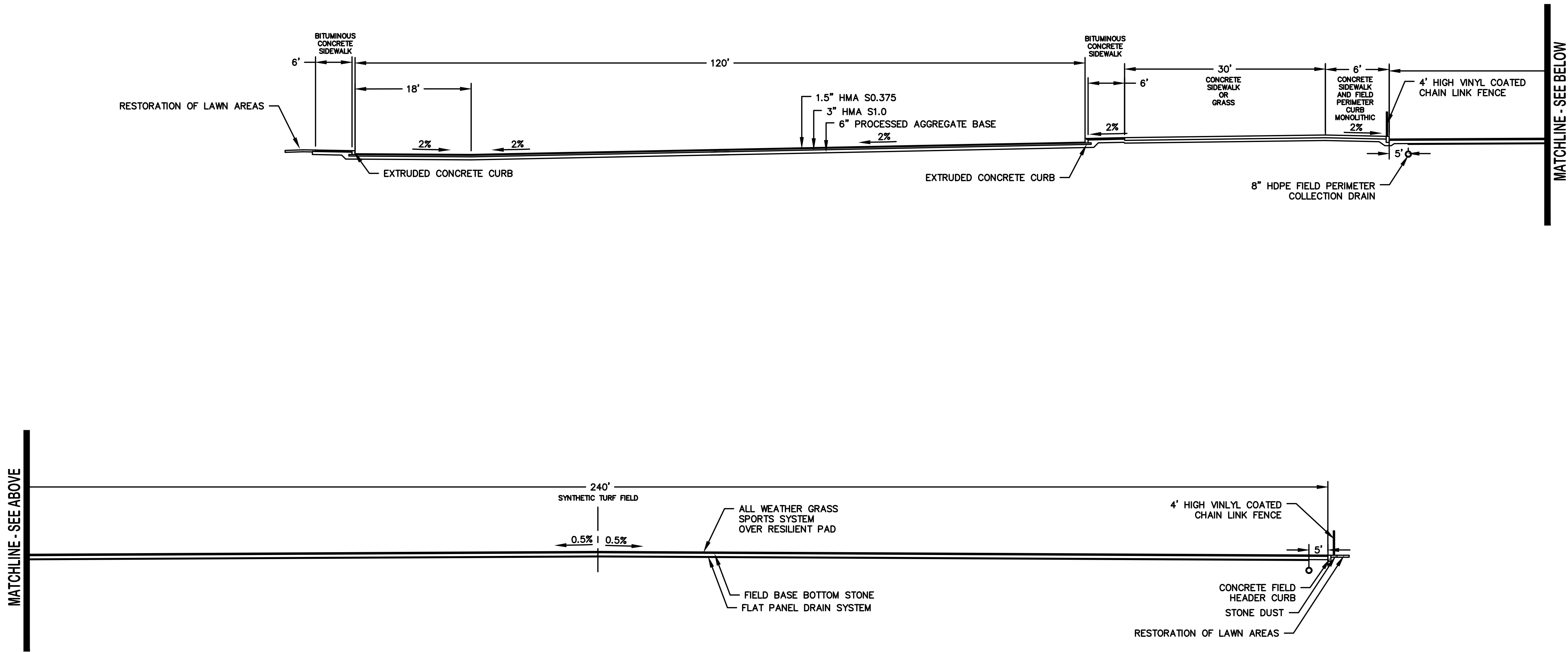
- 1) This survey and map have been prepared in accordance with the Regulations of Connecticut State Agencies, Sections 20-300B-1 through 20-300B-20, and the "Minimum Standards of Accuracy, Content & Certification for Surveys and Maps," as revised October 26, 2018. It is a General Location Survey with physical feature location in the areas of construction conforming to a Class "C" standard of accuracy.
- 2) This map was prepared from record research, other maps, limited field measurements, and other sources. Property lines and Street lines depicted hereon are not to be construed as a Boundary or Limited Boundary Survey, and are subject to such facts as said surveys may show. Property line and Street line information depicted hereon was taken from existing Town of Manchester mapping as referenced hereon. It is approximate and for general orientation purposes only. It does not represent a property/boundary opinion.
- 3) Planimetric, Topographic, and Utility Elevations (Visible Surface Structures) depicted within the project area are based on field survey conducted prior to the project and conform to a Class T-2 standard of accuracy. Features shown outside of the project area were obtained from Townwide Aerial Mapping dated April 1999, with limited field checks.
- 4) Horizontal control based on Town of Manchester control network points #254 & #9000 (NAD 1983). Vertical datum is based on Town of Manchester control network (NAVD 1988). (Established in 1998).
- 5) Underground utility information is based on the best available information as provided by the respective utility. Prior to any construction activity, contact Call Before You Dig at 1-800-922-4455. Test Pits may be required by respective utilities.
- 6) It is the intent of this plan to depict existing topographic and planimetric data within the area shown for infrastructure improvements.

To my knowledge and belief this map is substantially correct as noted hereon.

DOUGLAS T. SANBORN, P.L.S. 18144

DATE

CERTIFICATION INVALID WITHOUT
LIVE SIGNATURE AND RAISED SEAL



1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "MANCHESTER PUBLIC IMPROVEMENT STANDARDS", EFFECTIVE OCTOBER 31, 2020, AS AMENDED AND THE STATE OF CONN. DEPT. OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES AND INCIDENTAL CONSTRUCTION, FORM 818, DATED 2020, INCLUDING ANY SUPPLEMENTS.
2. ALL ELEVATIONS ARE BASED ON THE TOWN OF MANCHESTER CONTROL NETWORK.
3. IMPLEMENTING WORKER SAFETY AND HEALTH PROTOCOLS THAT ADDRESS COMPLIANCE WITH ALL RULES, LAWS AND REGULATIONS REGARDING SAFETY AND RISK OF EXPOSURE TO PHYSICAL AND CHEMICAL HAZARDS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ALL EMPLOYEES OF THE CONTRACTOR AND SUBCONTRACTORS ARE TO WEAR REFLECTIVE VESTS AND HARD HATS AT ALL TIMES WHEN ON THE PROJECT SITE.
4. A PRECONSTRUCTION MEETING WITH TOWN STAFF IS REQUIRED PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY.
5. IT IS ANTICIPATED THAT IMPROVEMENTS IDENTIFIED ON THE PLANS AS BEING COMPLETED "BY OTHERS" WILL BE DONE PRIOR TO OR AT THE BEGINNING STAGES OF CONSTRUCTION.
6. THE CONTRACTOR SHALL TAKE CARE NOT TO DISTURB EXISTING MONUMENTATION THAT MAY BE PRESENT NEAR THE PROJECT AREA.
7. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN ALL REQUIRED PERMITS AND PAY ASSOCIATED FEES PRIOR TO ANY CONSTRUCTION ACTIVITY. THE CONTRACTOR MUST OBTAIN AN ENCROACHMENT PERMIT FROM THE STATE OF CONNECTICUT, DEPARTMENT OF TRANSPORTATION, PRIOR TO BEGINNING WORK WITHIN THE CHARTER OAK STREET RIGHT-OF-WAY AND SHALL BE RESPONSIBLE FOR ALL ASSOCIATED FEES AND REQUIREMENTS.

8. THE CONTRACTOR SHALL COMMIT SUFFICIENT RESOURCES TO THE PROJECT TO ENSURE THE PROJECT IS COMPLETED WITHIN THE ALLOTTED CONTRACT TIME. ONCE MOBILIZED, THE CONTRACTOR SHALL WORK CONTINUOUSLY ON THE PROJECT UNTIL COMPLETION. ANY UNAUTHORIZED VACATING OF THE JOBSITE IS SUBJECT TO PENALTIES DESCRIBED UNDER THE "LIQUIDATED DAMAGES" SECTION OF THE CONTRACT SPECIFICATIONS.
9. CONSTRUCTION ENTRANCES SHALL BE INSTALLED WHERE SHOWN ON THE PLANS OR WHERE DIRECTED BY THE ENGINEER DURING CONSTRUCTION. ALL CONSTRUCTION TRAFFIC SHALL ACCESS AND EXIT THE SITES OVER CONSTRUCTION ENTRANCES. CONTRACTOR SHALL PROVIDE TEMPORARY BARRIERS OR CONSTRUCTION FENCE ACROSS OTHER ACCESS LOCATIONS TO THE SITE AT NO ADDITIONAL COST.
10. NO WORK SHALL COMMENCE UNTIL ALL CONSTRUCTION AREA SIGNS ARE IN PLACE.
11. ALL GRASSSED AREAS DISTURBED BY THE CONTRACTOR SHALL BE REPLACED WITH TOPSOIL, FERTILIZED AND SEEDED AS PER THE SPECIFICATIONS. CONTRACTOR SHALL MAKE ALL EFFORTS TO MINIMIZE THE LIMITS OF DISTURBANCE AND ASSOCIATED RESTORATION THAT IS REQUIRED.
12. ALL SEDIMENT CONTROL SYSTEMS SHALL MEET THE "GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" AS PREPARED BY THE CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION, LATEST REVISION. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE AND REPAIR OF EROSION CONTROLS REQUIRED FOR THE PROJECT. ADDITIONAL EROSION CONTROLS SHALL BE INSTALLED BY THE CONTRACTOR FOR TEMPORARY STOCKPILING OF EXCAVATED MATERIAL AND WHERE DEEMED NECESSARY BY THE ENGINEER. EROSION CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL THE SITE IS STABILIZED AND THE ENGINEER

APPROVES THEIR REMOVAL.

13. SILT SACKS SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASINS WITHIN THE PROJECT AREA AND WHERE DIRECTED BY THE ENGINEER. SILT SACKS SHALL BE THE APPROPRIATE TYPE FOR CATCH BASINS WITH AND WITHOUT CURB INLETS.
14. HORIZONTAL AND VERTICAL LOCATIONS OF PROPOSED WORK MAY BE ADJUSTED TO FIT EXISTING FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER.
15. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IF CONDITIONS ENCOUNTERED IN THE FIELD ARE DIFFERENT THAN INFORMATION SHOWN ON THE PLANS.
16. THE EXISTENCE OF UTILITIES AND APPURTENANCES AS SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY. THE EXACT SIZE, LOCATION, TYPE, AND ELEVATION OF ALL UTILITIES WITHIN ALL WORK AREAS SHALL BE THOROUGHLY INVESTIGATED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "CALL-BEFORE-YOU-DIG" AT 1-800-922-4455 AND MUST HAVE ALL UTILITIES MARKED ON THE GROUND PRIOR TO THE START OF CONSTRUCTION.
17. THE QUANTITIES AS INDICATED IN THE CONTRACT DOCUMENTS ARE APPROXIMATE AND MAY NOT INDICATE THE ACTUAL QUANTITIES OF WORK REQUIRED. THE CONTRACTOR MUST VERIFY ALL QUANTITIES.
18. SURPLUS EXCAVATED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL DISPOSE OF SURPLUS EXCAVATED MATERIAL IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY HANDLING

OF ALL STORMWATER RUNOFF DURING CONSTRUCTION. METHODS OF HANDLING RUNOFF SHALL BE APPROVED BY THE ENGINEER.

20. AT THE END OF EACH WORKING DAY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTING EXISTING SANITARY SEWER LATERALS TO EXISTING. ALL DRAINAGE SYSTEMS WITHIN THE CONSTRUCTION LIMITS SHALL BE MAINTAINED BY THE CONTRACTOR.
21. FOR CONNECTIONS TO EXISTING SANITARY SEWER STRUCTURES AND PIPING, THE CONTRACTOR SHALL VERIFY EXISTING INVERT ELEVATIONS, NOTIFY THE ENGINEER IF A DISCREPANCY EXISTS, AND ADJUST THE PIPE SLOPES AS DIRECTED.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY HANDLING OF ALL SEWAGE FLOWS DURING CONSTRUCTION. METHODS OF HANDLING SEWAGE FLOWS SHALL BE APPROVED BY THE ENGINEER.
23. AT THE END OF EACH WORKING DAY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTING EXISTING SANITARY SEWER LATERALS TO NEW SANITARY FACILITIES. THE CONTRACTOR IS RESPONSIBLE FOR PROPER DISPOSAL OF ALL MATERIALS.
24. ALL SANITARY SEWER MANHOLES SHALL HAVE A 48" INTERNAL DIAMETER UNLESS SPECIFIED OTHERWISE ON THE PLANS.
25. ALL NEW WATER MAINS AND SERVICES SHALL HAVE 4.5 FEET OF COVER UNLESS OTHERWISE INDICATED ON THE PLANS. COVER LESS THAN OR IN EXCESS OF 4.5 FEET SHALL BE ALLOWED ONLY WHERE INDICATED ON THE PLANS OR APPROVED BY THE ENGINEER. WATER MAINS AND SERVICES WITH COVER LESS THAN 4.5 FEET SHALL BE INSULATED UNLESS APPROVED OTHERWISE BY THE ENGINEER.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY TEMPORARY THRUST RESTRAINT THAT IS REQUIRED.



TOWN OF MANCHESTER
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
494 MAIN STREET - P.O. BOX 191
MANCHESTER, CT 06045-0191

LEGEND	
	= WETLANDS BOUNDARY
	= RETAINING WALL
	= CURB WALL
	= STONE WALL
	= STOCKADE FENCE
	= WIRE FENCE
	= CHAIN LINK FENCE
	= PROPERTY LINE
	= RAILROAD TRACKS
	= SILT FENCE
	= CONCRETE MONUMENT
	= GRANITE MONUMENT
	= IRON PIPE
	= IRON ROD
	= CONTROL POINT
	= DRILL HOLE
	= UTILITY POLE
	= UTILITY POLE WITH LIGHT
	= TRAFFIC SPAN POLE
	= ELECTRIC BOX
	= WETLAND FLAG
	= LIGHT POLE
	= CONIFEROUS TREE
	= DECIDUOUS TREE
	= SANITARY MANHOLE
	= DRAINAGE MANHOLE
	= CATCH BASIN
	= CULVERT END
	= HYDRANT
	= CURB STOP
	= WATER VALVE
	= BUTTERFLY VALVE
	= BLOW OFF
	= SIGN
	= DOUBLE POST SIGN
	= MAIL BOX
	= BOLLARD
	= CONTROLLER CABINET
	= GAS GATE
	= TELEPHONE BOX
	= CATV TUBE

PROJECT NUMBER
2021078

FILENAME
2021078-PLAN.DWG

NO.	DATE	FILE
-	04/17/24	BID PLANS

DRAWN BY:

CHECKED BY: JL

RELEASED BY: TB

DATUM
HORIZONTAL: NAD83 VERTICAL: NAVD88

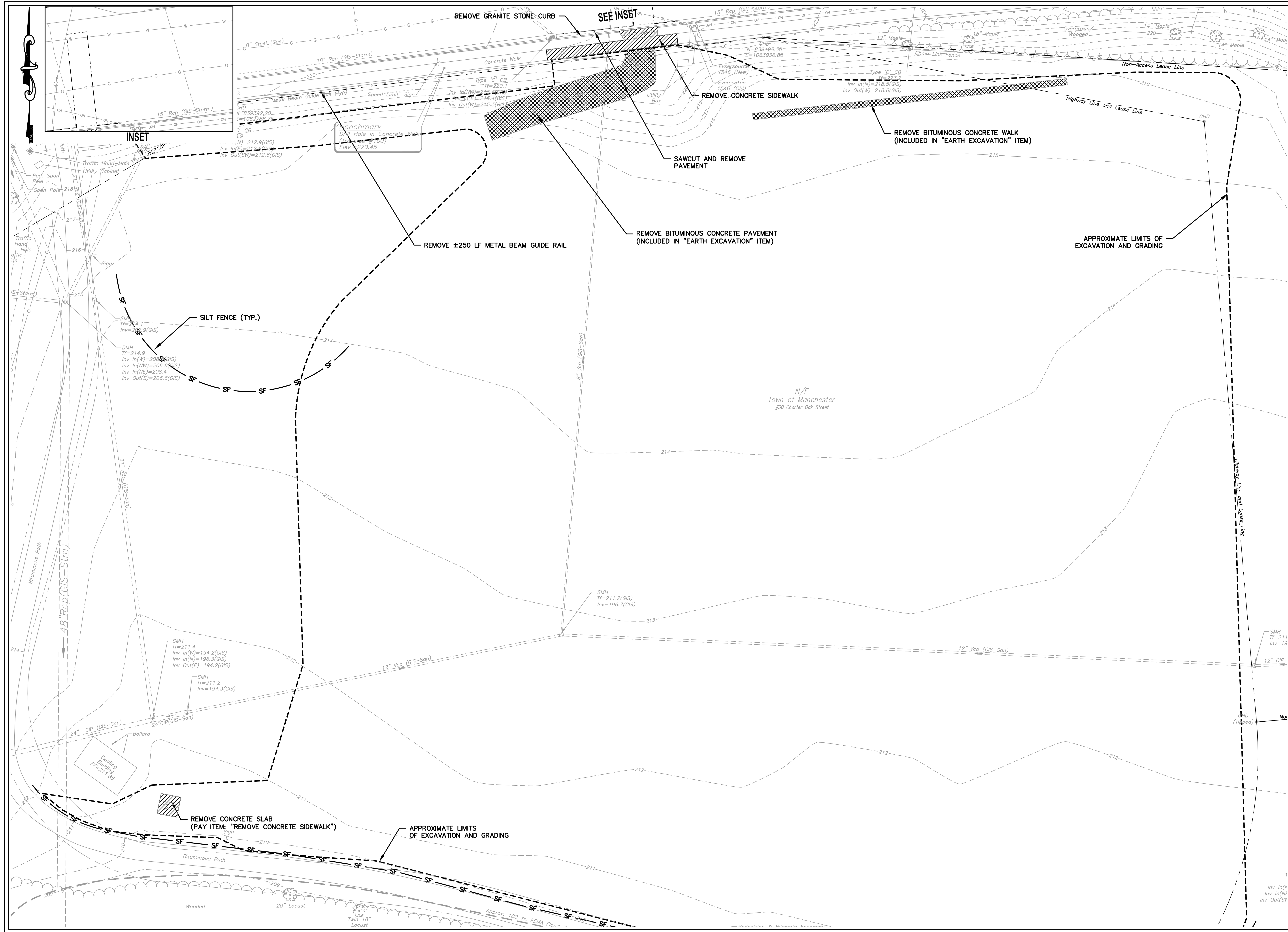
PROJECT LOCATION
**CHARTER OAK STREET
MANCHESTER, CT**


PROJECT TITLE
**PARK IMPROVEMENTS
CHARTER OAK WEST**

SHEET TITLE
TYPICAL SECTION

SHEET NUMBER

3 of 18





TOWN OF MANCHESTER
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
494 MAIN STREET - P.O. BOX 191
MANCHESTER, CT 06045-0191

LEGEND

WETLANDS BOUNDARY	LIGHT POLE
RETAINING WALL	CONIFEROUS TREE
GUIDE RAIL	DECIDUOUS TREE
STONE WALL	SANITARY MANHOLE
STOCKADE FENCE	DRAINAGE MANHOLE
WIRE FENCE	CATCH BASIN
CHAIN LINK FENCE	CULVERT END
PROPERTY LINE	HYDRANT
RAILROAD TRACKS	CURB STOP
SILT FENCE	WATER VALVE
CONCRETE MONUMENT	BUTTERFLY VALVE
GRANITE MONUMENT	BLOW OFF
IRON PIPE	SIGN
IRON ROD	DOUBLE POST SIGN
CONTROL POINT	MAIL BOX
DRILL HOLE	BOLLARD
UTILITY POLE	CONTROLLER CABINET
UTILITY POLE WITH LIGHT	GAS GATE
TRAFFIC SPAN POLE	TELEPHONE BOX
ELECTRIC BOX	CATV TUBE
WETLAND FLAG	

PROJECT NUMBER
2021078

FILENAME
2021078-PLAN.DWG

NO.	DATE	FILE
-	04/17/24	BID PLANS

DRAWN BY:
CHECKED BY: JL
RELEASED BY: TB

DRAWING SCALE
HORIZONTAL: 1" = 20' VERTICAL: ---
OR AS NOTED
GRAPHIC SCALE

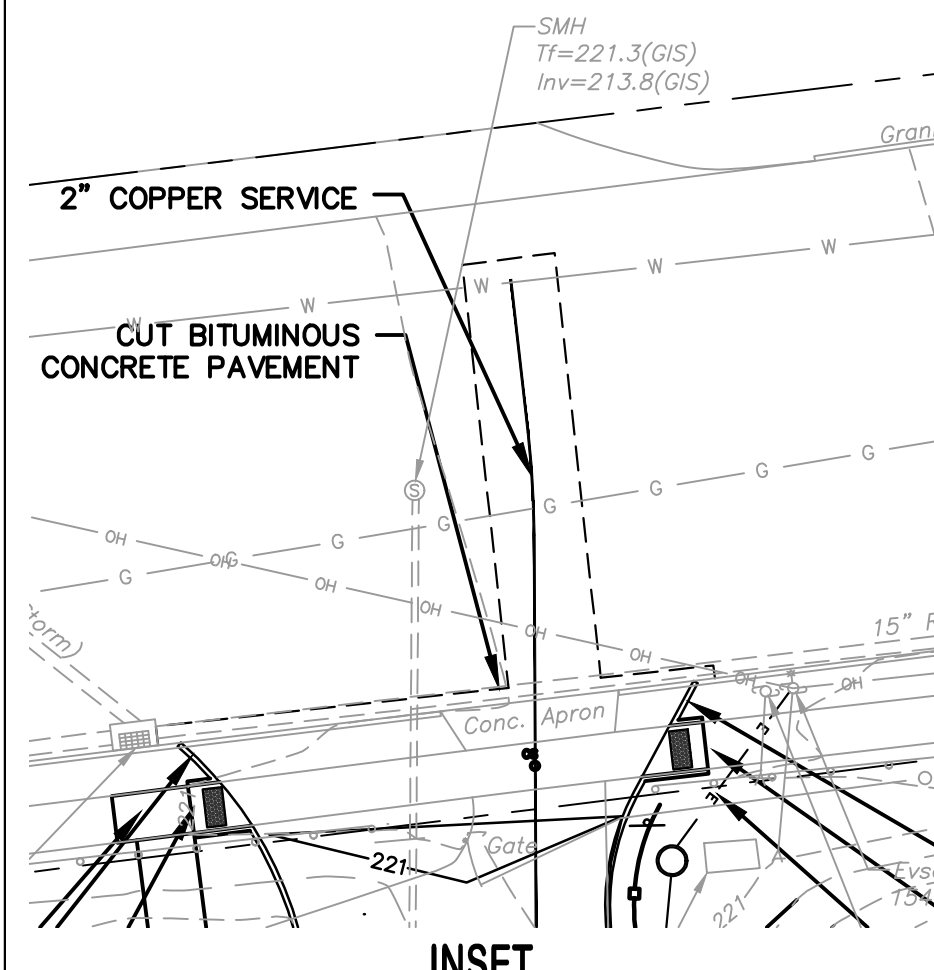
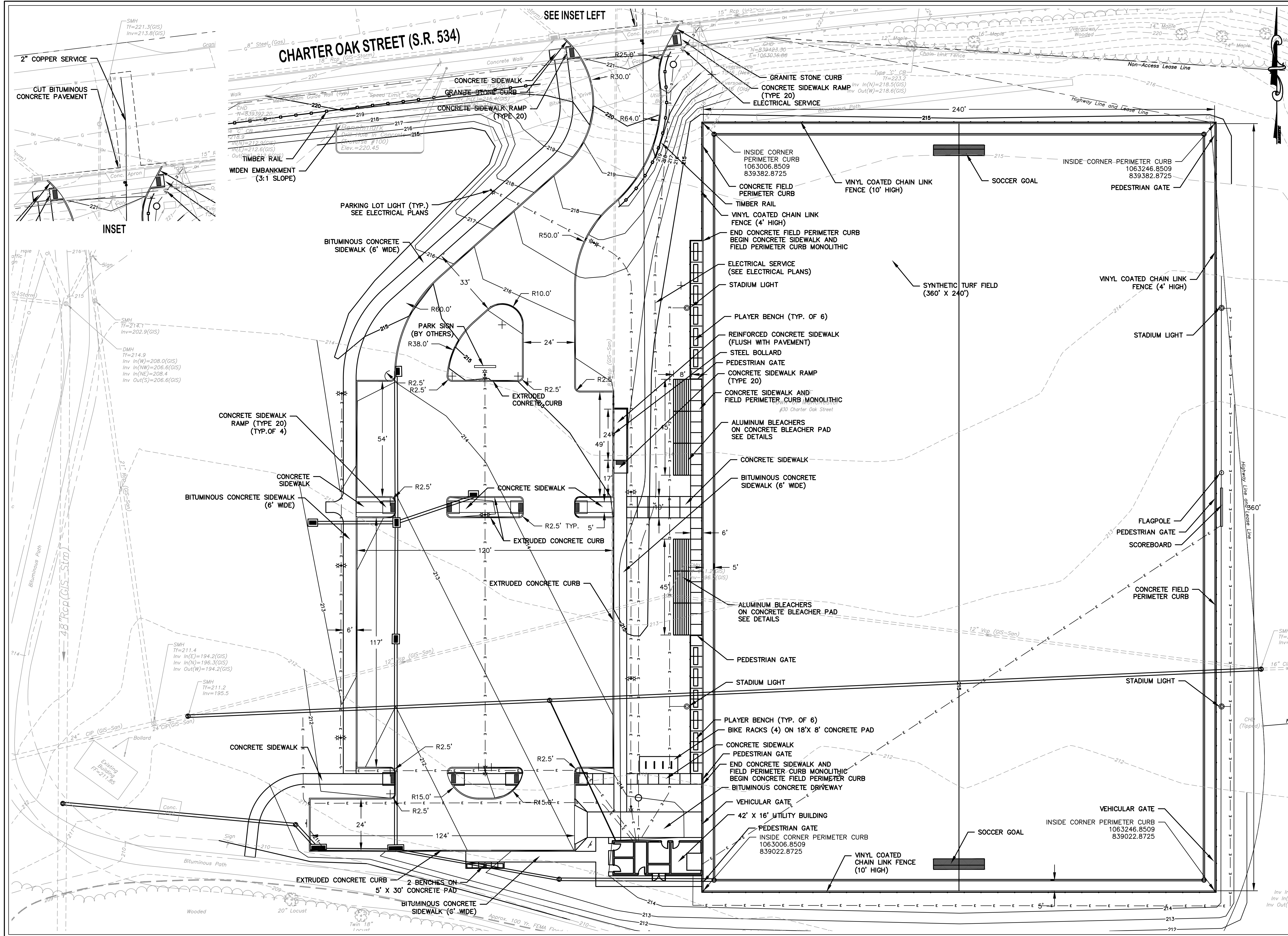
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PROJECT LOCATION
CHARTER OAK STREET
MANCHESTER, CT

PROJECT TITLE
PARK IMPROVEMENTS
CHARTER OAK WEST

SHEET TITLE
DEMOLITION PLAN

SHEET NUMBER
4 of 18



TOWN OF MANCHESTER
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
494 MAIN STREET - P.O. BOX 191
MANCHESTER, CT 06045-0191

LEGEND	
	WETLAND BOUNDARY
	RETAINING WALL
	STONE WALL
	STOCKADE FENCE
	WIRE FENCE
	CHAIN LINK FENCE
	PROPERTY LINE
	RAILROAD TRACKS
	SILT FENCE
	CONCRETE MONUMENT
	GRANITE MONUMENT
	IRON PIPE
	IRON ROD
	CONTROL POINT
	DRILL HOLE
	UTILITY POLE
	UTILITY POLE WITH LIGHT
	TRAFFIC SPAN POLE
	ELECTRIC BOX
	WETLAND FLAG
	LIGHT POLE
	CONIFEROUS TREE
	DECIDUOUS TREE
	SANITARY MANHOLE
	DRAINAGE MANHOLE
	CATCH BASIN
	CULVERT END
	HYDRANT
	CURB STOP
	WATER VALVE
	BUTTERFLY VALVE
	BLOW OFF
	SIGN
	DOUBLE POST SIGN
	MAIL BOX
	BOLLARD
	GAS CONTROLLER
	TELEPHONE BOX
	CATV TUBE

PROJECT NUMBER
2021078

FILENAME
2021078-PLAN.DWG

NO.	DATE	FILE
-	04/17/24	BID PLANS

DRAWN BY:
CHECKED BY: JL
RELEASED BY: TB

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HORIZONTAL: 1" = 20'
OR AS NOTED
GRAPHIC SCALE
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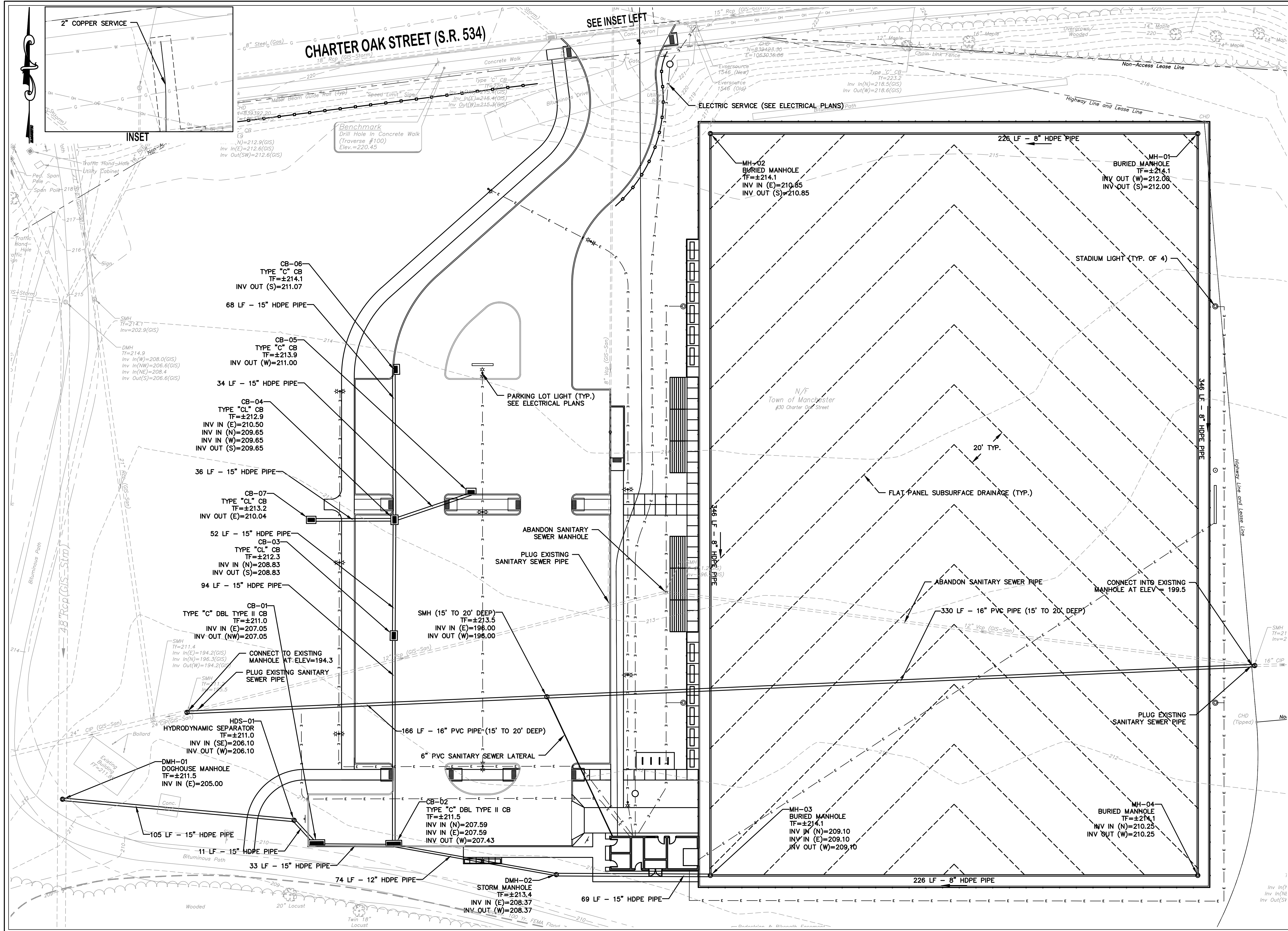
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HORIZONTAL: NAD83 VERTICAL: NAVD88


PROJECT LOCATION
**CHARTER OAK STREET
MANCHESTER, CT**

PROJECT TITLE
**PARK IMPROVEMENTS
CHARTER OAK WEST**

SHEET TITLE
LAYOUT PLAN

SHEET NUMBER
5 of 18





TOWN OF MANCHESTER
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
494 MAIN STREET - P.O. BOX 191
MANCHESTER, CT 06045-0191

LEGEND

WETLANDS BOUNDARY	★ LIGHT POLE
RETAINING WALL	✱ CONIFEROUS TREE
GUIDE WALL	✱ DEODOROUS TREE
STONE WALL	⊙ SANITARY MANHOLE
STOCKADE FENCE	⊙ DRAINAGE MANHOLE
WIRE FENCE	⊙ CATCH BASIN
CHAIN LINK FENCE	⊙ CULVERT END
PROPERTY LINE	⊙ HYDRANT
RAILROAD TRACKS	⊙ CURB STOP
SILT FENCE	⊙ WATER VALVE
CONCRETE MONUMENT	⊙ BUTTERFLY VALVE
GRANITE MONUMENT	⊙ BLOW OFF
IRON PIPE	⊙ SIGN
IRON ROD	⊙ DOUBLE POST SIGN
CONTROL POINT	⊙ MAIL BOX
DRILL HOLE	⊙ BOLLARD
UTILITY POLE	⊙ CONTROLLER CABINET
UTILITY POLE WITH LIGHT	⊙ GAS GATE
TRAFFIC SPAN POLE	⊙ TELEPHONE BOX
ELECTRIC BOX	⊙ CATV TUBE
WETLAND FLAG	

PROJECT NUMBER
2021078

FILENAME
2021078-PLAN.DWG

NO.	DATE	FILE
-	04/17/24	BID PLANS

DRAWN BY:
CHECKED BY: JL
RELEASED BY: TB

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OR AS NOTED
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GRAPHIC SCALE

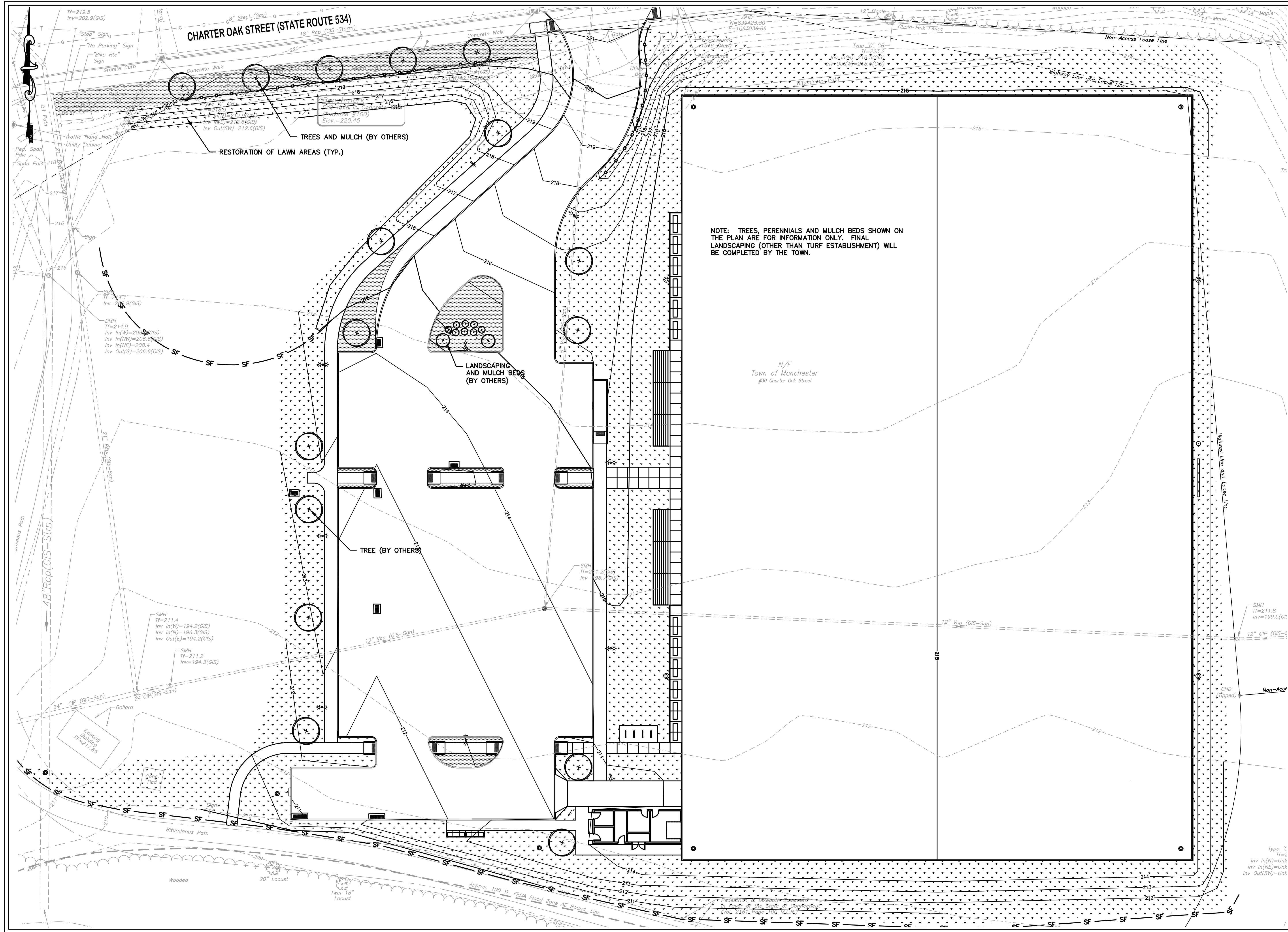
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PROJECT LOCATION
CHARTER OAK STREET
MANCHESTER, CT

PROJECT TITLE
PARK IMPROVEMENTS
CHARTER OAK WEST

SHEET TITLE
UTILITY PLAN

SHEET NUMBER
7 of 18





TOWN OF MANCHESTER
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
494 MAIN STREET — P.O. BOX 191
MANCHESTER, CT 06045-0191

LEGEND

WETLANDS BOUNDARY	LIGHT POLE
RETAINING WALL	CONIFEROUS TREE
STONE WALL	DECIDUOUS TREE
STOCKADE FENCE	SANITARY MANHOLE
WIRE FENCE	DRAINAGE MANHOLE
CHAIN LINK FENCE	CATCH BASIN
PROPERTY LINE	CULVERT END
RAILROAD TRACKS	HYDRANT
SILT FENCE	CURB STOP
CONCRETE MONUMENT	WATER VALVE
GRANITE MONUMENT	BUTTERFLY VALVE
IRON PIPE	BLOW OFF
IRON ROD	SIGN
CONTROL POINT	DOUBLE POST SIGN
DRILL HOLE	MAIL BOX
UTILITY POLE	BOLLARD
UTILITY POLE WITH LIGHT	CONTROLLER CABINET
TRAFFIC SPAN POLE	GAS GATE
ELECTRIC BOX	TELEPHONE BOX
WETLAND FLAG	CATV TUBE

PROJECT NUMBER
2021078

FILENAME
2021078-PLAN.DWG

NO.	DATE	FILE
—	04/17/24	BID PLANS

DRAWN BY:
CHECKED BY: JL
RELEASED BY: TB

DRAWING SCALE
HORIZONTAL: 1" = 20'
OR AS NOTED
GRAPHIC SCALE

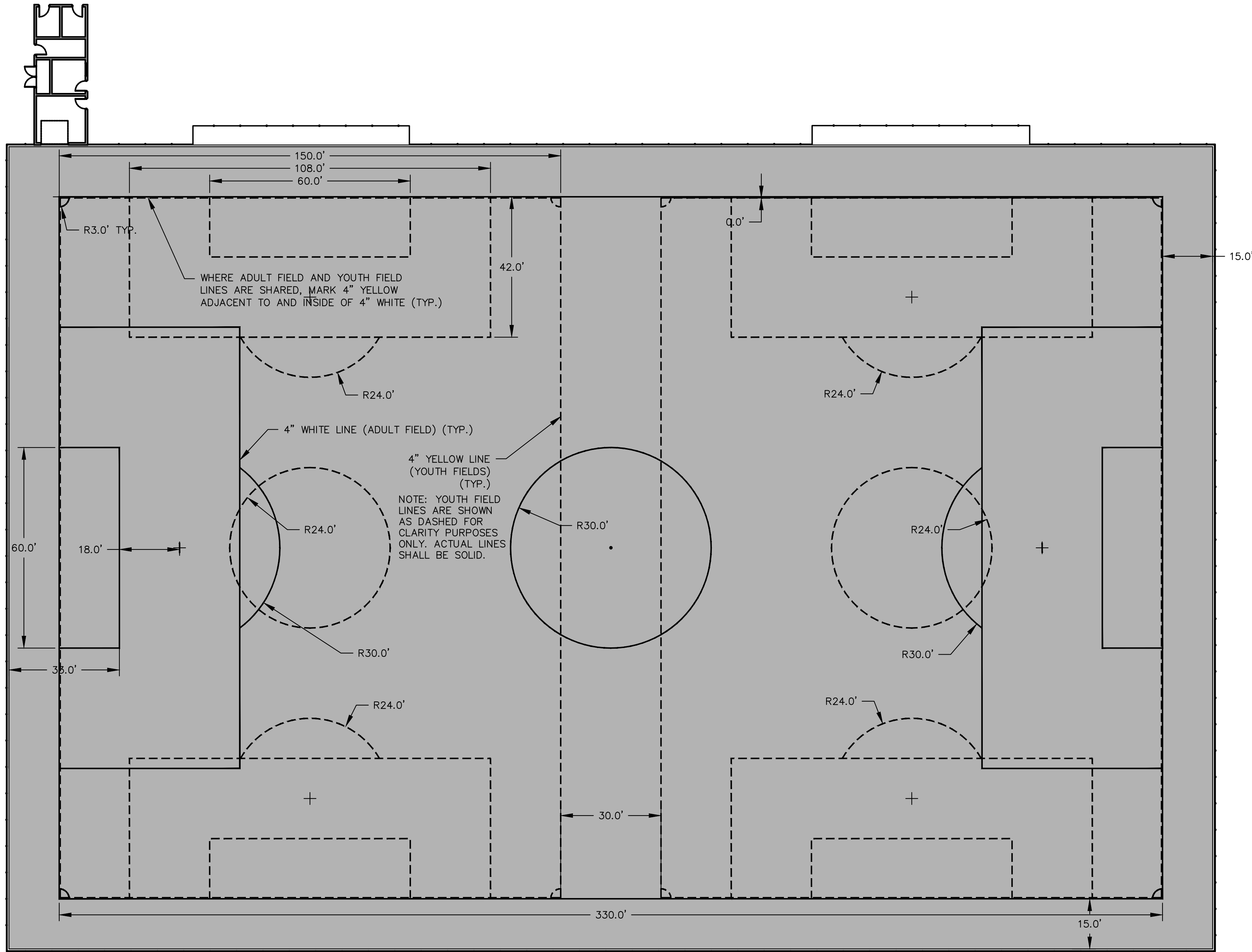
DATUM
HORIZONTAL: NAD83 VERTICAL: NAVD88

PROJECT LOCATION
CHARTER OAK STREET
MANCHESTER, CT

PROJECT TITLE
PARK IMPROVEMENTS
CHARTER OAK WEST

SHEET TITLE
TURF ESTABLISHMENT
AND LANDSCAPING PLAN

SHEET NUMBER
9 of 18



TOWN OF MANCHESTER
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
494 MAIN STREET — P.O. BOX 191
MANCHESTER, CT 06045-0191

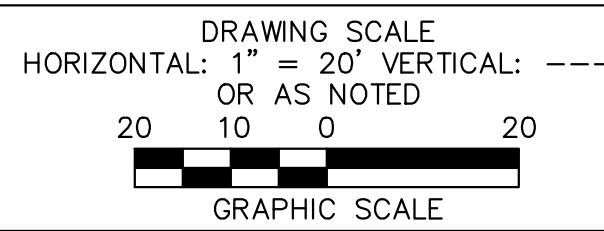
LEGEND	
	WETLANDS BOUNDARY
	RETAINING WALL
	GUIDE WALL
	STONE WALL
	STOCKADE FENCE
	WIRE FENCE
	CHAIN LINK FENCE
	PROPERTY LINE
	RAILROAD TRACKS
	SILT FENCE
	CONCRETE MONUMENT
	GRANITE MONUMENT
	IRON PIPE
	IRON ROD
	CONTROL POINT
	DRILL HOLE
	UTILITY POLE
	UTILITY POLE WITH LIGHT
	TRAFFIC SPAN POLE
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	WETLAND FLAG
	LIGHT POLE
	CONIFEROUS TREE
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	DRAINAGE MANHOLE
	CATCH BASIN
	CULVERT END
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	CURB STOP
	WATER VALVE
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	DOUBLE POST SIGN
	MAIL BOX
	BOLLARD
	CONTROLLER CABINET
	GAS GATE
	TELEPHONE BOX
	CATV TUBE

PROJECT NUMBER
2021078

FILENAME
2021078-PLAN.DWG

NO.	DATE	FILE
—	04/17/24	BID PLANS

DRAWN BY:
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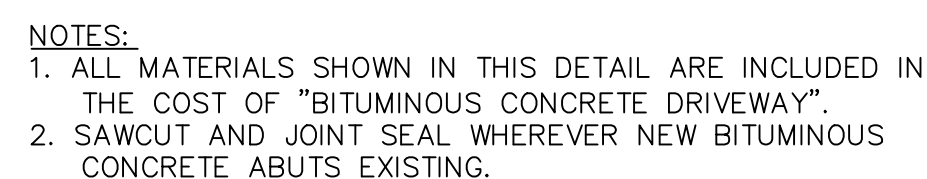
DATUM
HORIZONTAL: NAD83 VERTICAL: NAVD88

PROJECT LOCATION
**CHARTER OAK STREET
MANCHESTER, CT**

PROJECT TITLE
**PARK IMPROVEMENTS
CHARTER OAK WEST**

SHEET TITLE
FIELD MARKING PLAN

SHEET NUMBER
10 of 18



A cross-sectional diagram of a concrete curb and aggregate base. The diagram shows a concrete curb with a top width of 6" (TYP.) and a length of 6'. The curb has a 2% MAX. SLOPE. Below the curb is a 6" PROCESSED AGGREGATE BASE. The curb is labeled as 3" - HMA SO.375 SURFACE COURSE (2 EQUAL LIFTS). The curb is also labeled as GRASS SHELVE (OR CURB). The diagram is labeled SECTION.

60'

7'

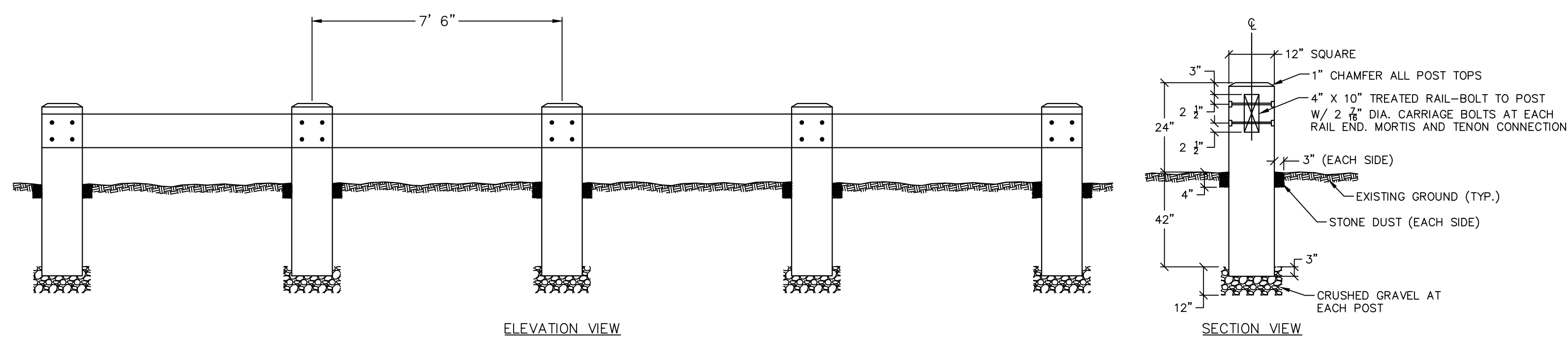
FULL CONTROL JOINT WITH 1" ASPHALT JOINT MATERIAL

15' TYP.

DOWEL TO CONCRETE SIDEWALK WITH 1" SMOOTH METAL DOWELS EVERY 3' O.C. (SEE CONCRETE SIDEWALK DETAIL FOR DOWEL DETAIL)

CONCRETE SIDEWALK

PLAN



30'-0"

15'-0"

5'-0"

5'-0"

5'-0"

FULL CONTROL JOINT EVERY 15 FEET WITH 1/2" ASPHALT EXPANSION JOINT MATERIAL

1/2" ASPHALT EXPANSION JOINT MATERIAL W/DOWELS EVERY 30' (SEE DETAIL THIS SHEET)

12" TYP.









































TOOLED JOINT (DEPTH 3/8")

PLAN



TOWN OF MANCHESTER
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
494 MAIN STREET — P.O. BOX 191
MANCHESTER, CT 06045-0191

LEGEND

 METALDS BOUNDARY  RETAINING WALL  GULCH RAIL  STONE WALL  STOCKADE FENCE  WIRE FENCE  CHAIN LINK FENCE  PROPERTY LINE  RAILROAD TRACKS  SALT FENCE  CONCRETE MONUMENT  IRON PIPE  IRON ROD  CONTROL POINT  DRILL HOLE  UTILITY POLE  UTILITY POLE WITH LIGHT  TRAFFIC SPAN POLE  ELECTRIC BOX  WETLAND PLANT	 LIGHT POLE  CONFIDENT TEE  SENSITIVE TREE  SANITARY MANHOLE  DRAINAGE MANHOLE  CATCH BASIN  GULCH DENT  HYDRANT  CURB STOP  WATER VALVE  BUTTERFLY VALVE  BLOW OFF  SIGN  DOUBLE POST SIGN  MAIL BOX  HOLLAND  CONTROLLER CABINET  GAS DATE  TELEPHONE BOX  CANY TUBE
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PROJECT NUMBER
2021078

FILENAME
2021078-DETAILS.DWG

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DRAWN BY:
CHECKED BY: JL
RELEASED BY: TB

DATUM
HORIZONTAL: NAD83 VERTICAL: NAVD88

PROJECT LOCATION

CHARTER OAK STREET
MANCHESTER, CT

PROJECT TITLE

**PARK IMPROVEMENTS
CHARTER OAK WEST**

SHEET TITLE

DETAILS

SHEET NUMBER

11 of 18



TOWN OF MANCHESTER
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
494 MAIN STREET - P.O. BOX 191
MANCHESTER, CT 06045-0191

LEGEND	
	WETLANDS BOUNDARY
	RETAINING WALL
	STONE WALL
	STOCKADE FENCE
	WIRE FENCE
	CHAIN LINK FENCE
	PROPERTY LINE
	RAILROAD TRACKS
	CONCRETE MONUMENT
	GRANITE MONUMENT
	IRON PIPE
	IRON ROD
	CONTROL POINT
	DRILL HOLE
	UTILITY POLE
	UTILITY POLE WITH LIGHT
	TRAFFIC SPAN POLE
	ELECTRIC BOX
	WETLAND FLAG
	LIGHT POLE
	CONIFEROUS TREE
	DECIDUOUS TREE
	SANITARY MANHOLE
	DRAINAGE MANHOLE
	CATCH BASIN
	CULVERT END
	HYDRANT
	CURB STOP
	WATER VALVE
	BUTTERFLY VALVE
	BLOW OFF
	SIGN
	DOUBLE POST SIGN
	MAIL BOX
	BOLLARD
	CONTROLLER CABINET
	GAS GATE
	TELEPHONE BOX
	CATV TUBE

PROJECT NUMBER
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FILENAME
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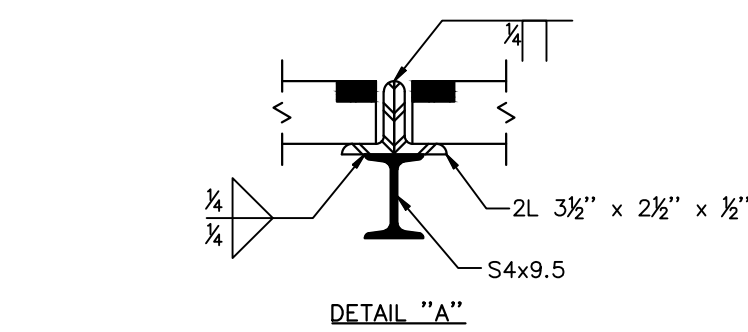
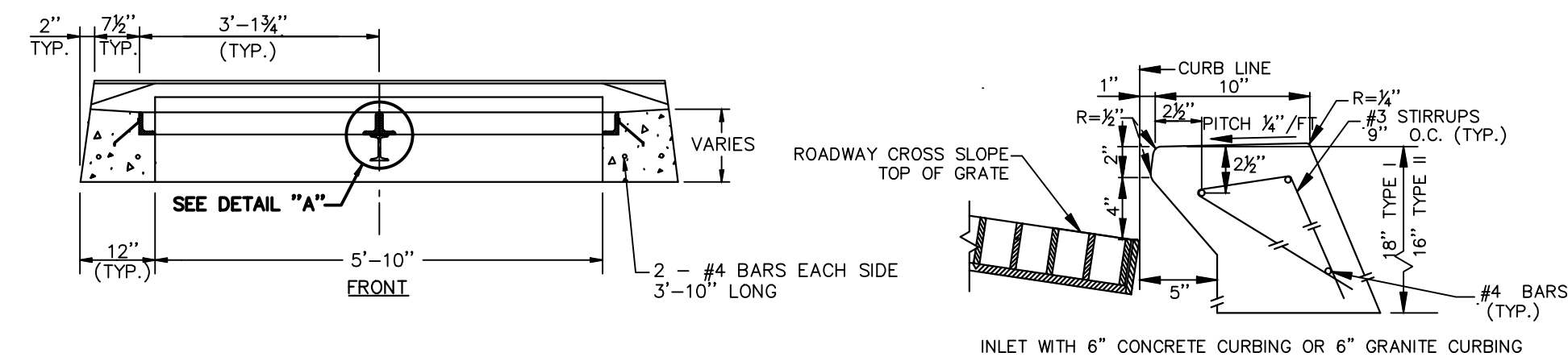
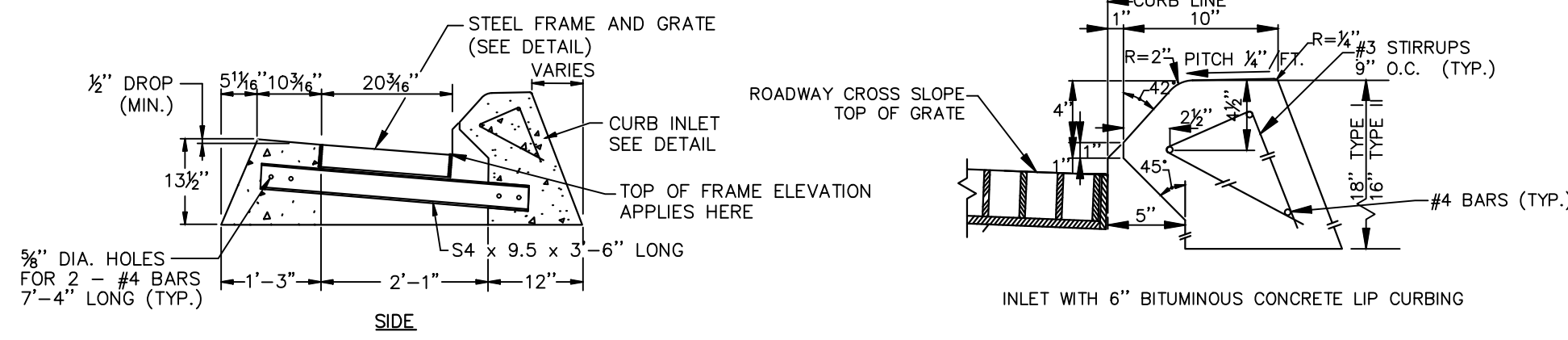
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MANCHESTER, CT

PROJECT TITLE
PARK IMPROVEMENTS
CHARTER OAK WEST

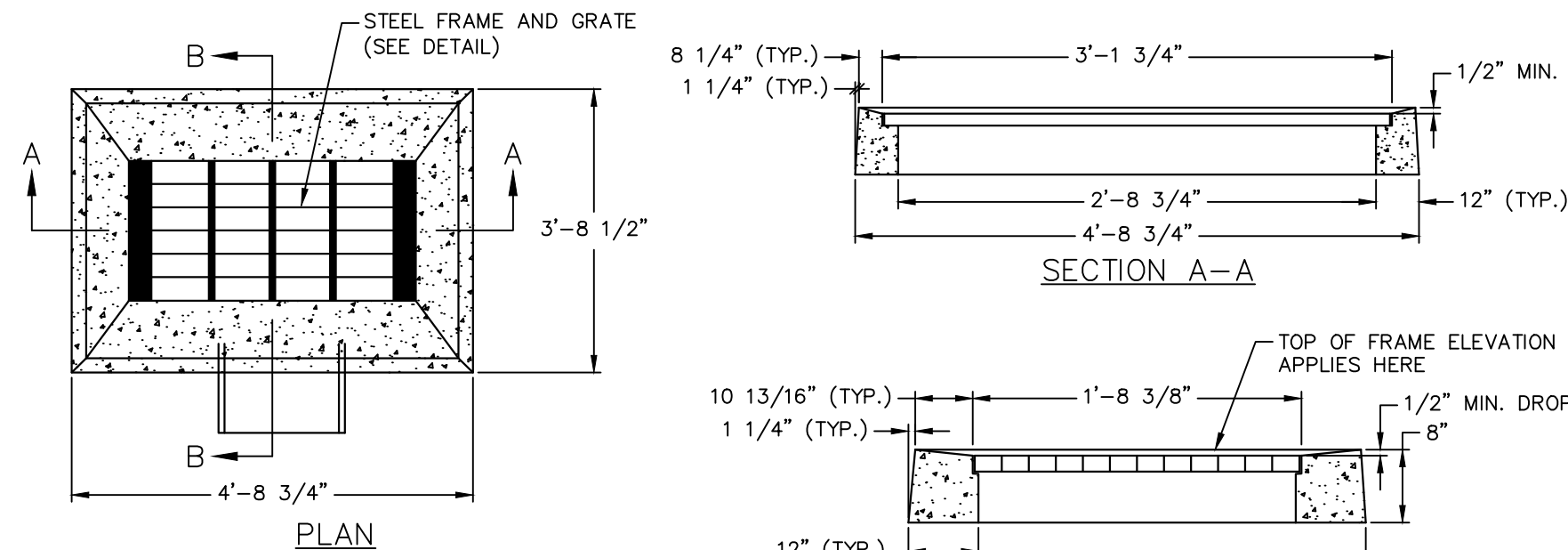
SHEET TITLE
DETAILS

SHEET NUMBER
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TYPE "C" DOUBLE GRATE TYPE II CATCH BASIN TOP

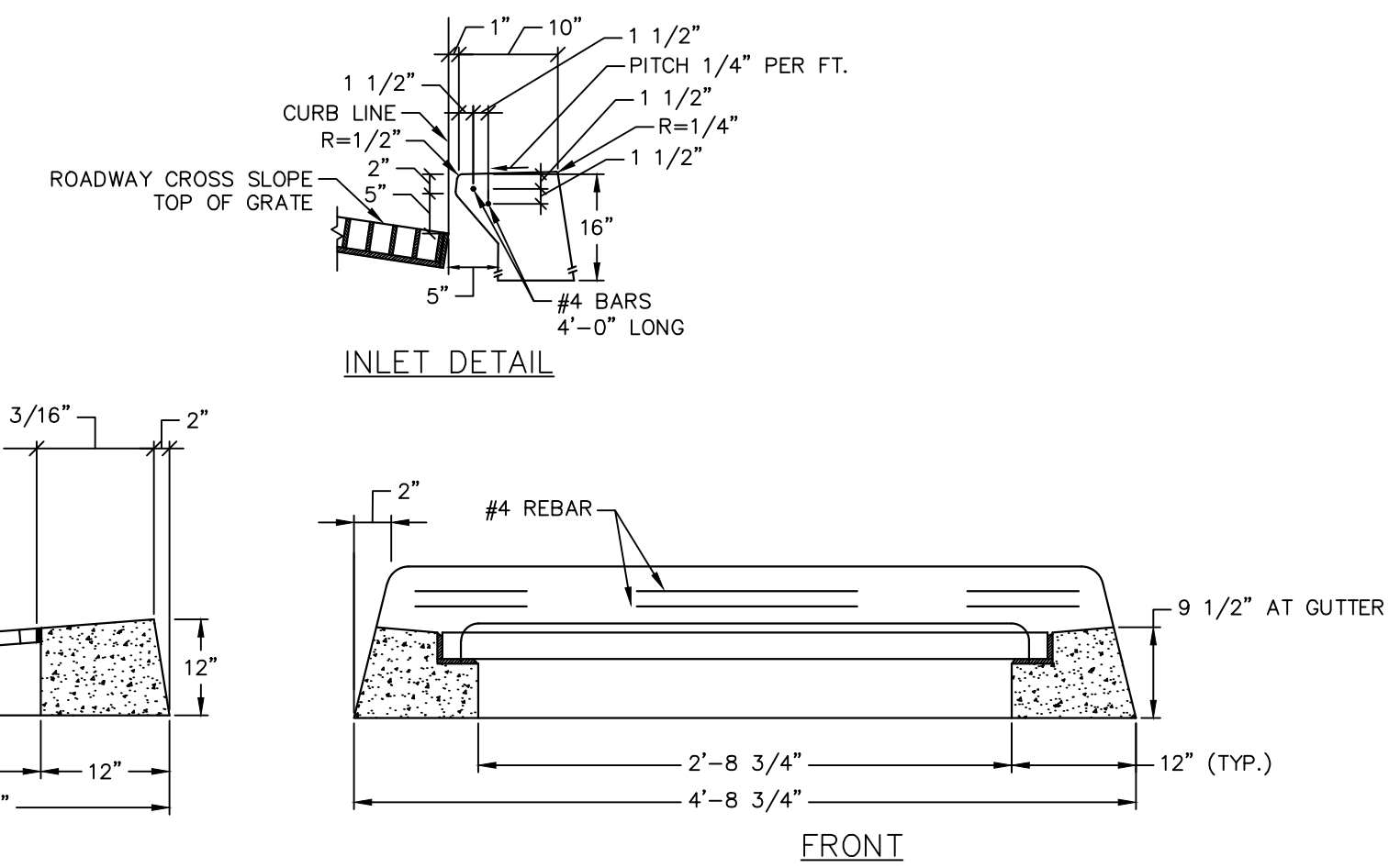
NOT TO SCALE



NOTE:
1. CATCH BASIN TOP DIMENSIONS PROVIDED ARE APPROXIMATE. ACTUAL DIMENSIONS ARE SUBJECT TO APPROVAL BY THE TOWN.

TYPE "C-L" CATCH BASIN TOP

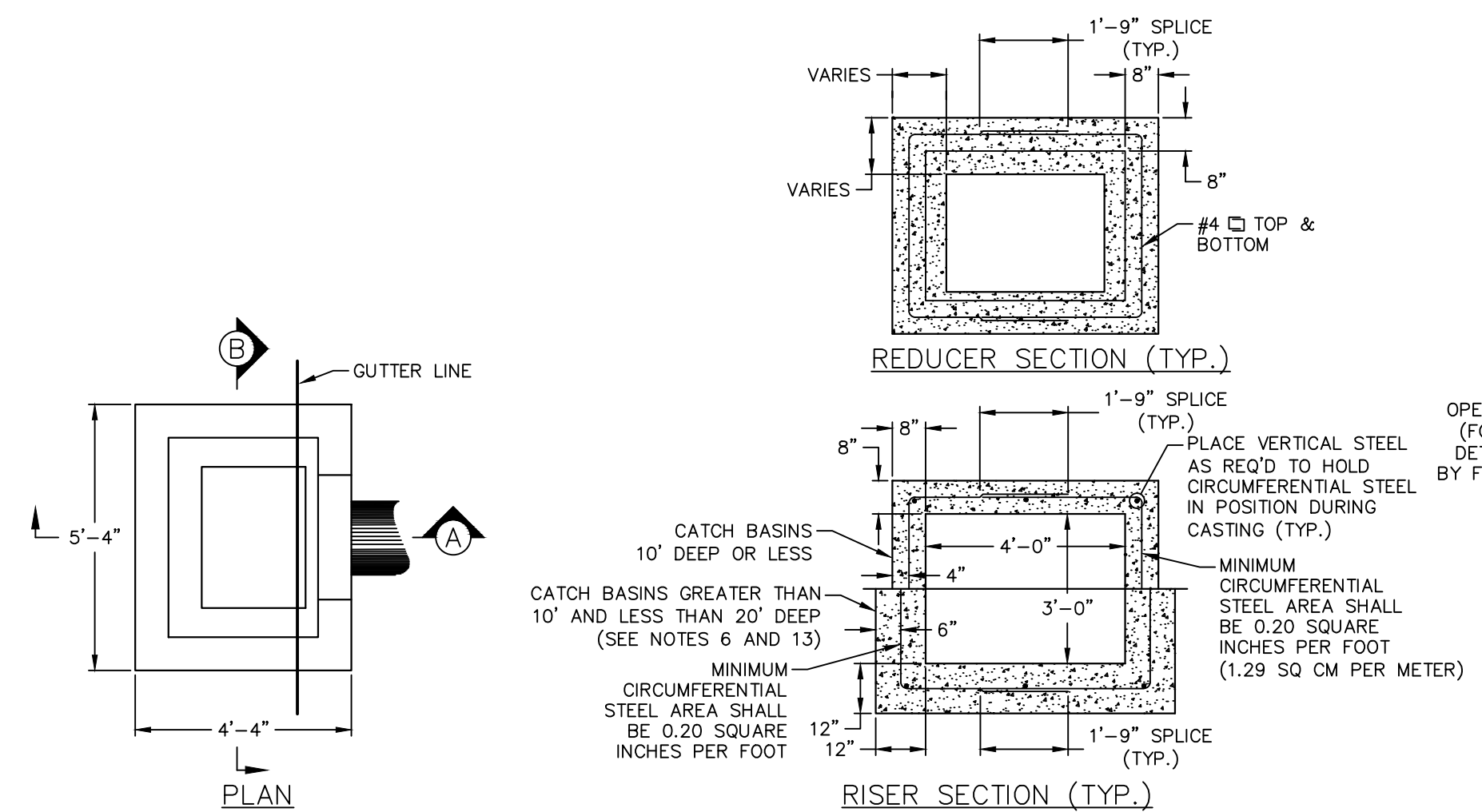
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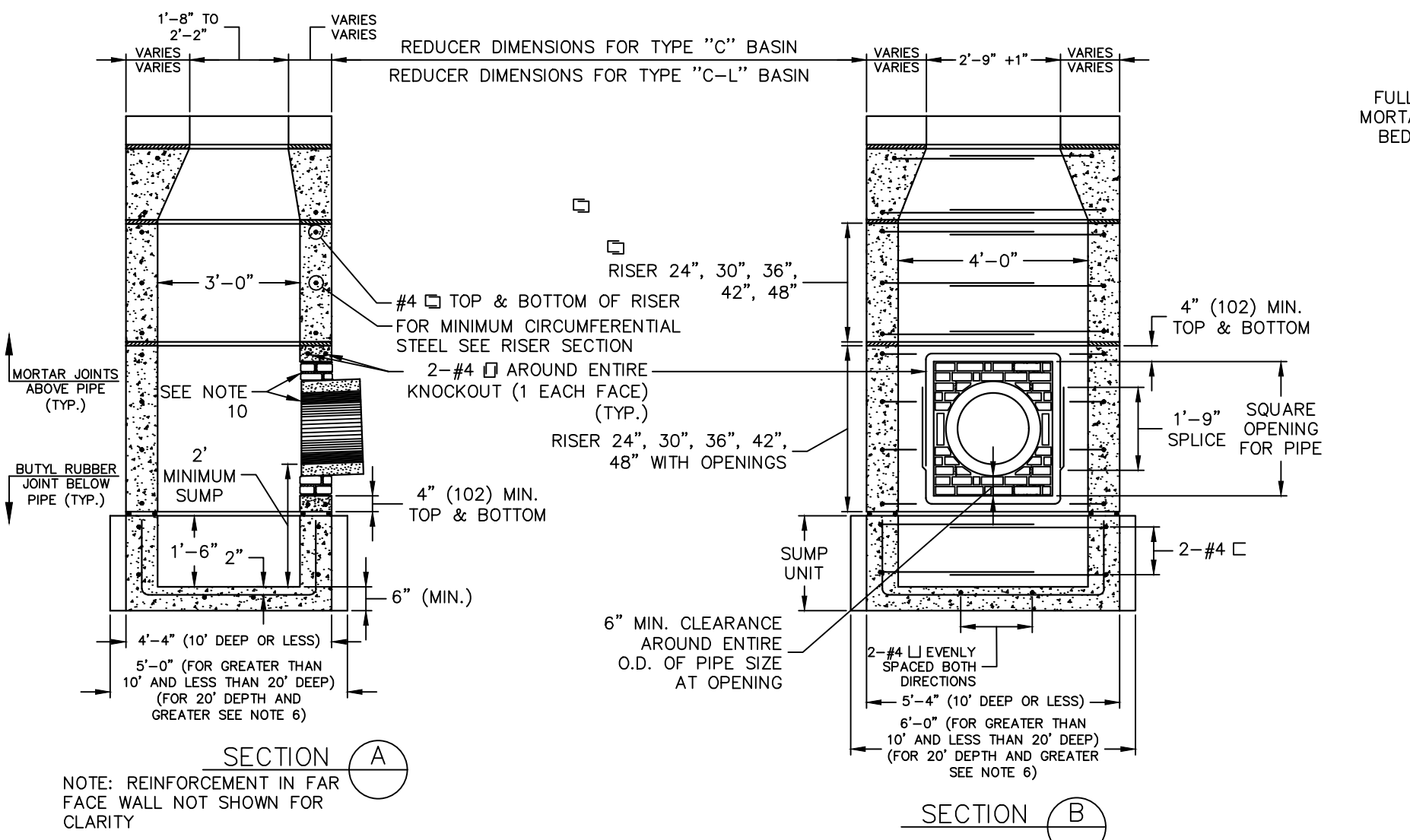
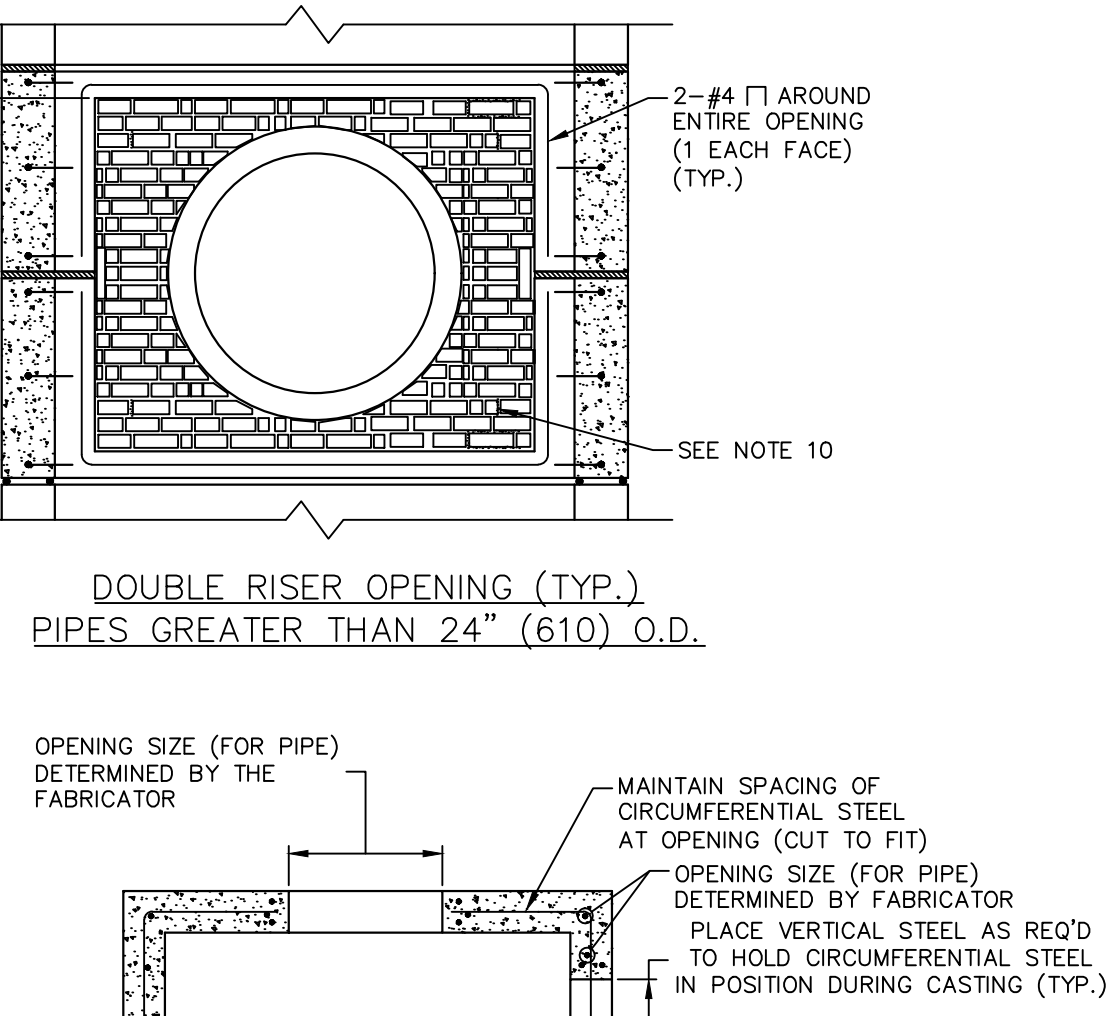
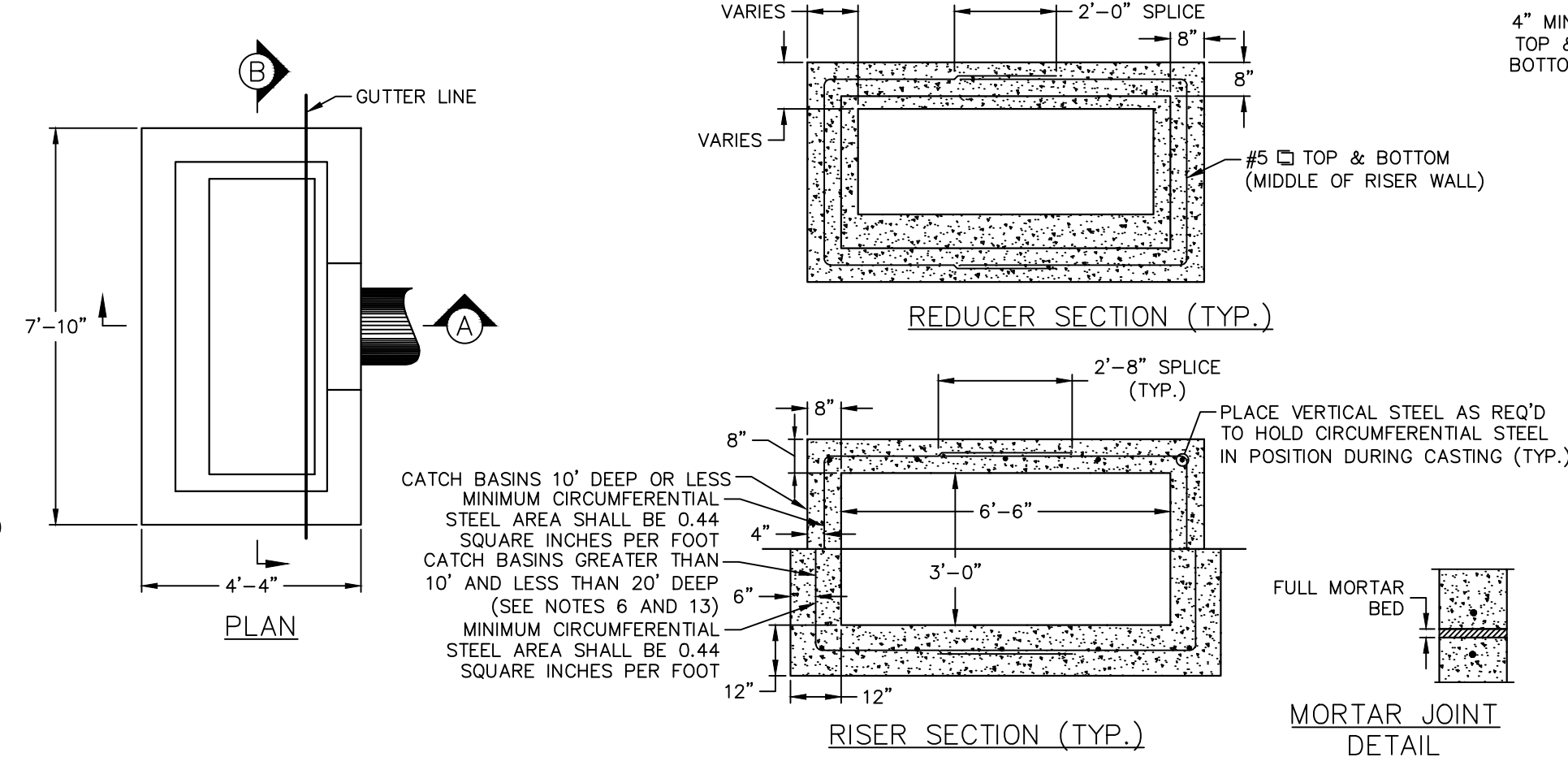
NOTES:
1. CONCRETE TOP SHALL BE CAST TO MATCH ADJACENT CONCRETE CURB.
2. CATCH BASIN TOP DIMENSIONS PROVIDED ARE APPROXIMATE. ACTUAL DIMENSIONS ARE SUBJECT TO APPROVAL BY THE TOWN.

TYPE "C" CATCH BASIN TOP (FOR CONCRETE CURB)

NOT TO SCALE

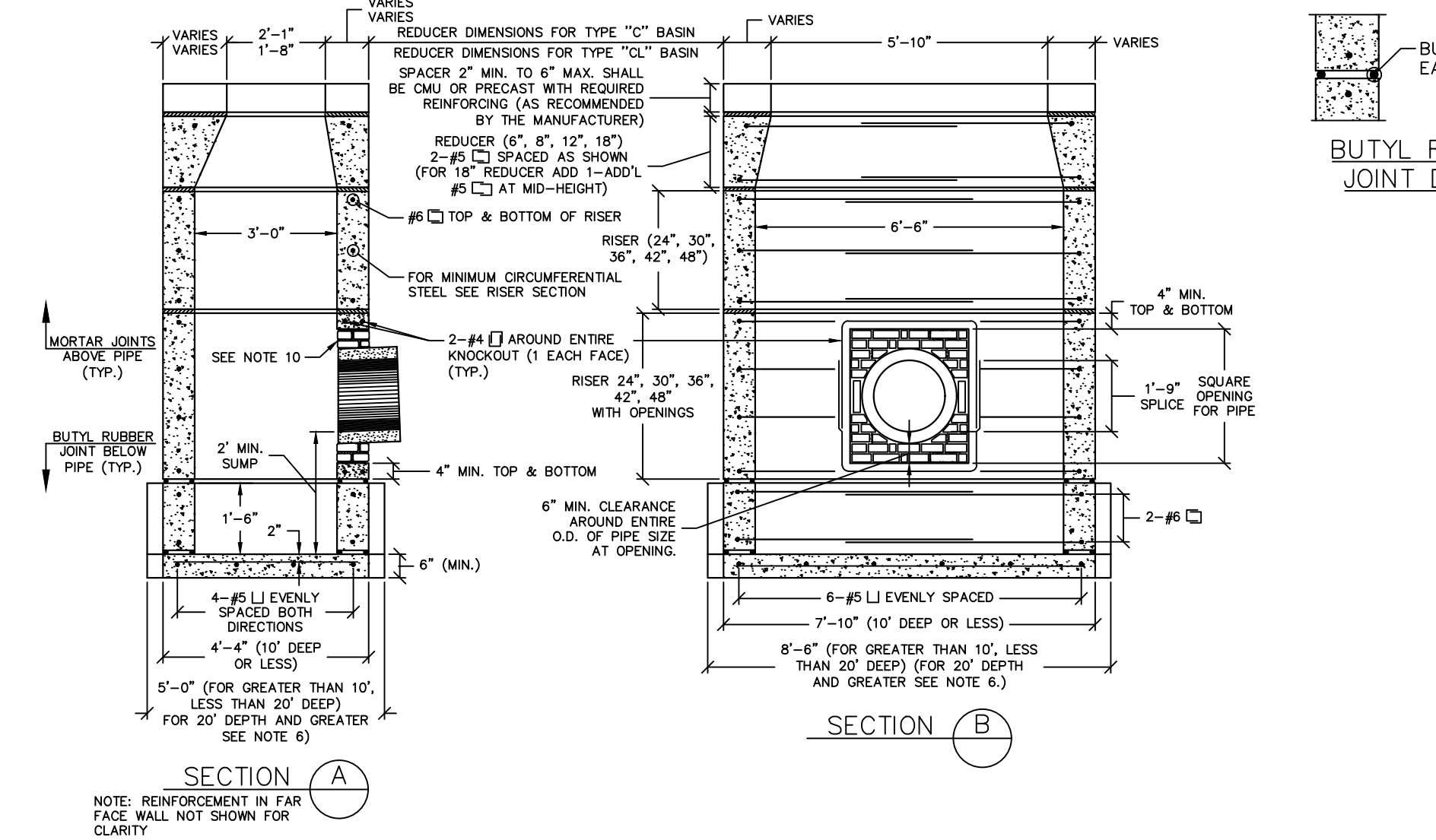


TYPICAL SECTION THRU RISER WITH OPENING



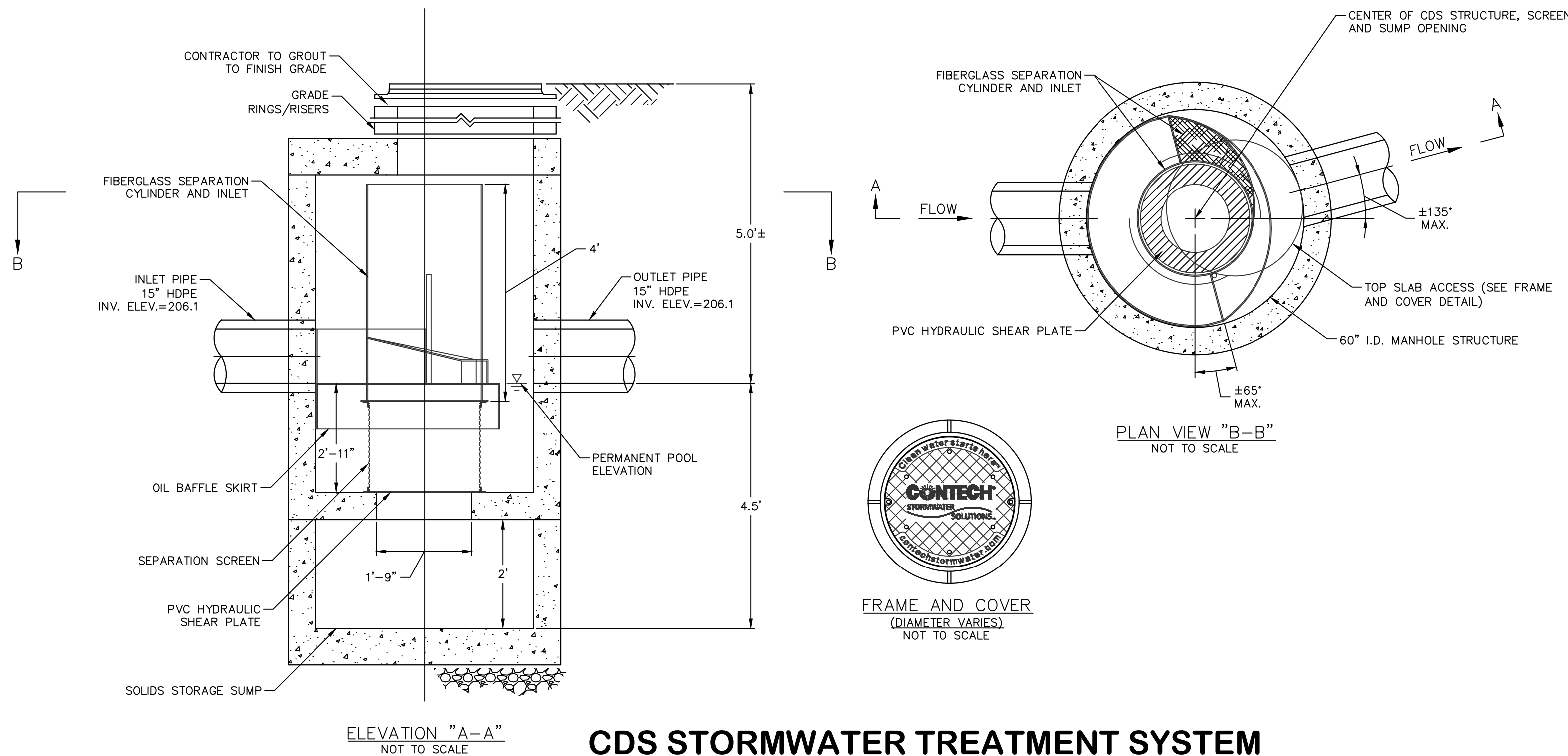
TYPE "C" AND TYPE "C-L" CATCH BASIN

NOT TO SCALE

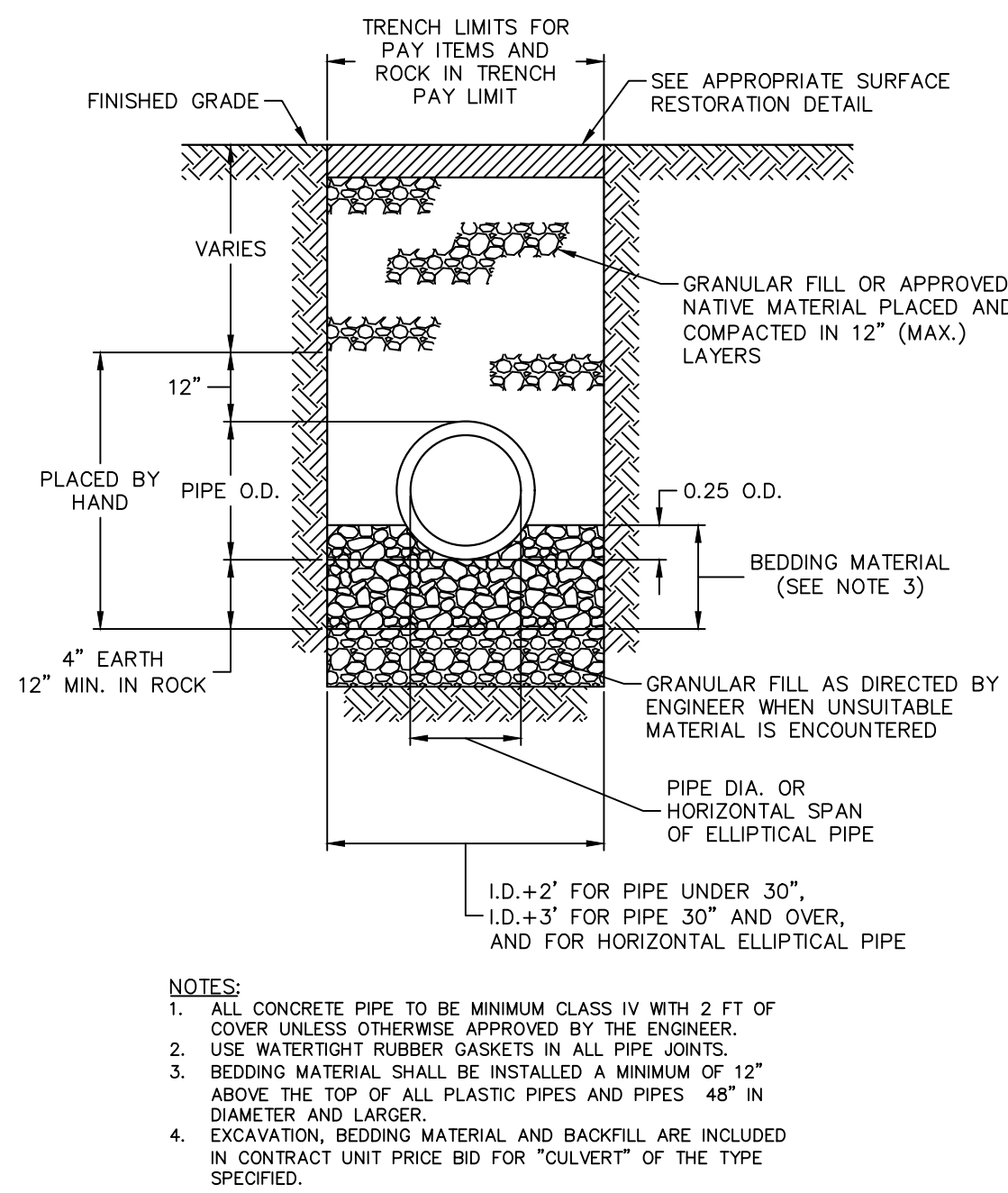


TYPE "C" AND "C-L" DOUBLE GRATE TYPE II CATCH BASIN

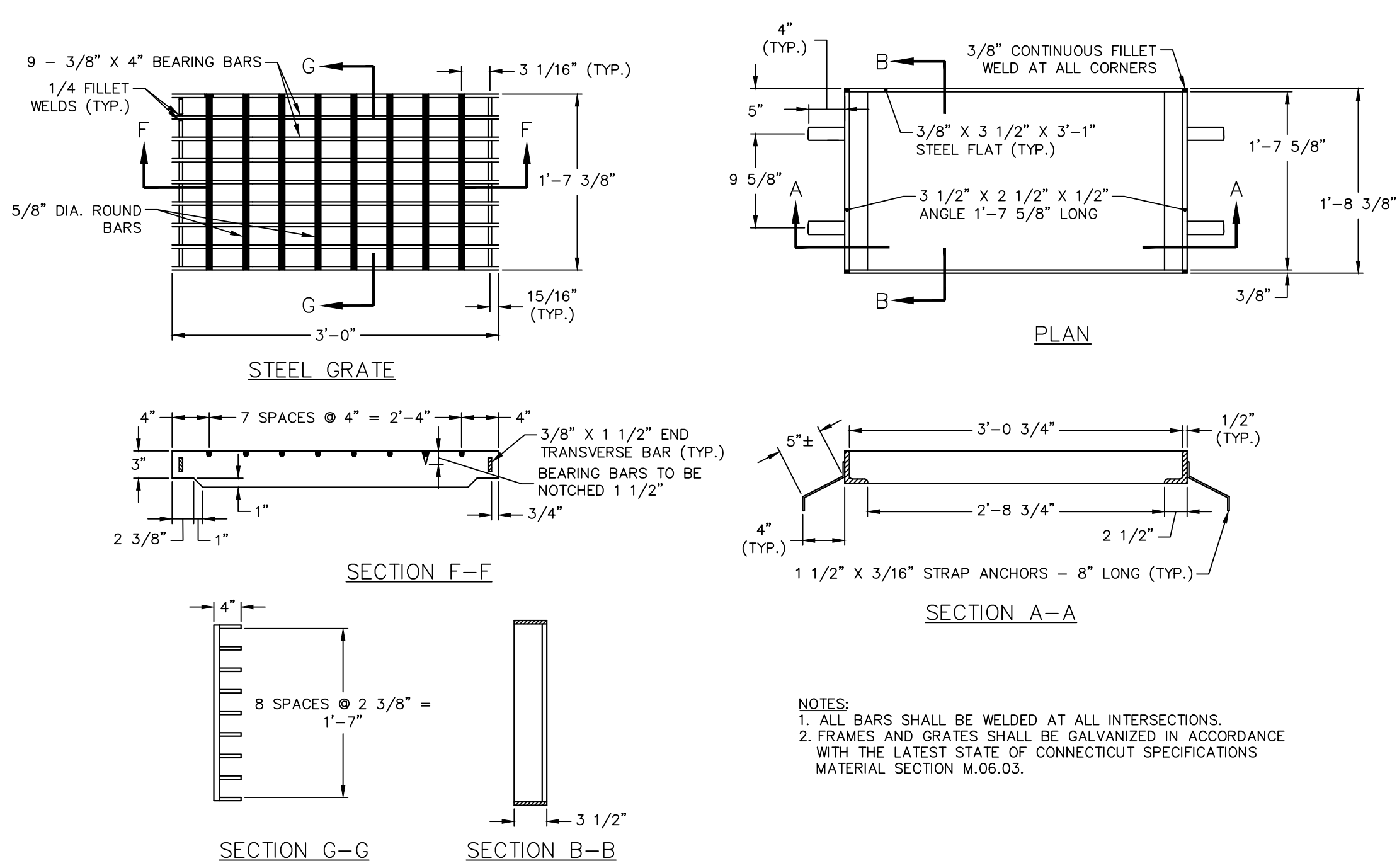
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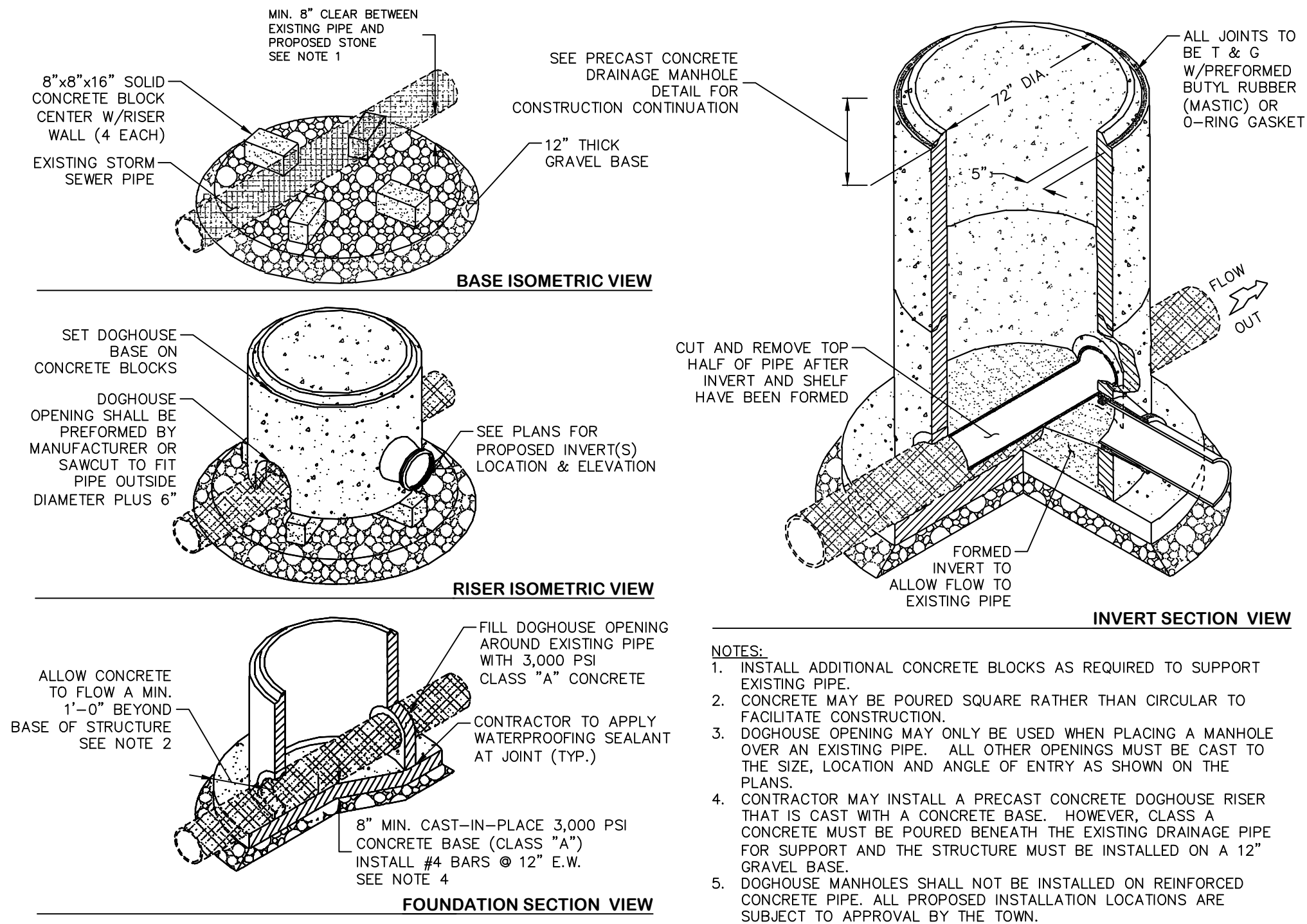
CDS STORMWATER TREATMENT SYSTEM
MODEL CDS 2025-5-C
(PAY ITEM: "HYDRODYNAMIC SEPARATOR")
NOT TO SCALE



TYPICAL TRENCH DETAIL
(STORM SEWER)
NOT TO SCALE



STEEL FRAME AND GRATE
NOT TO SCALE



DRAINAGE (STORM) DOGHOUSE MANHOLE
NOT TO SCALE



TOWN OF MANCHESTER
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
494 MAIN STREET - P.O. BOX 191
MANCHESTER, CT 06045-0191

LEGEND	
— WETLANDS BOUNDARY	☆ LIGHT POLE
— RETAINING WALL	✱ CONIFEROUS TREE
— CURB WALL	✱ DEODOROUS TREE
— STONE WALL	⊙ SANITARY MANHOLE
— STOCKADE FENCE	⊙ DRAINAGE MANHOLE
— WIRE FENCE	⊙ CATCH BASIN
— CHAIN LINK FENCE	⊙ CULVERT END
— PROPERTY LINE	⊙ HYDRANT
— RAILROAD TRACKS	⊙ CURB STOP
— SILT FENCE	⊙ WATER VALVE
⊙ CONCRETE MONUMENT	⊙ BUTTERFLY VALVE
⊙ GRANITE MONUMENT	⊙ BLOW OFF
⊙ IRON PIPE	⊙ SIGN
⊙ IRON ROD	⊙ DOUBLE POST SIGN
⊙ CONTROL POINT	⊙ MAIL BOX
⊙ DRILL HOLE	⊙ BOLLARD
⊙ UTILITY POLE	⊙ CONTROLLER CABINET
⊙ UTILITY POLE WITH LIGHT	⊙ GAS GATE
⊙ TRAFFIC SPAN POLE	⊙ TELEPHONE BOX
⊙ ELECTRIC BOX	⊙ CATV TUBE
⊙ WETLAND FLAG	

PROJECT NUMBER
2021078

FILENAME
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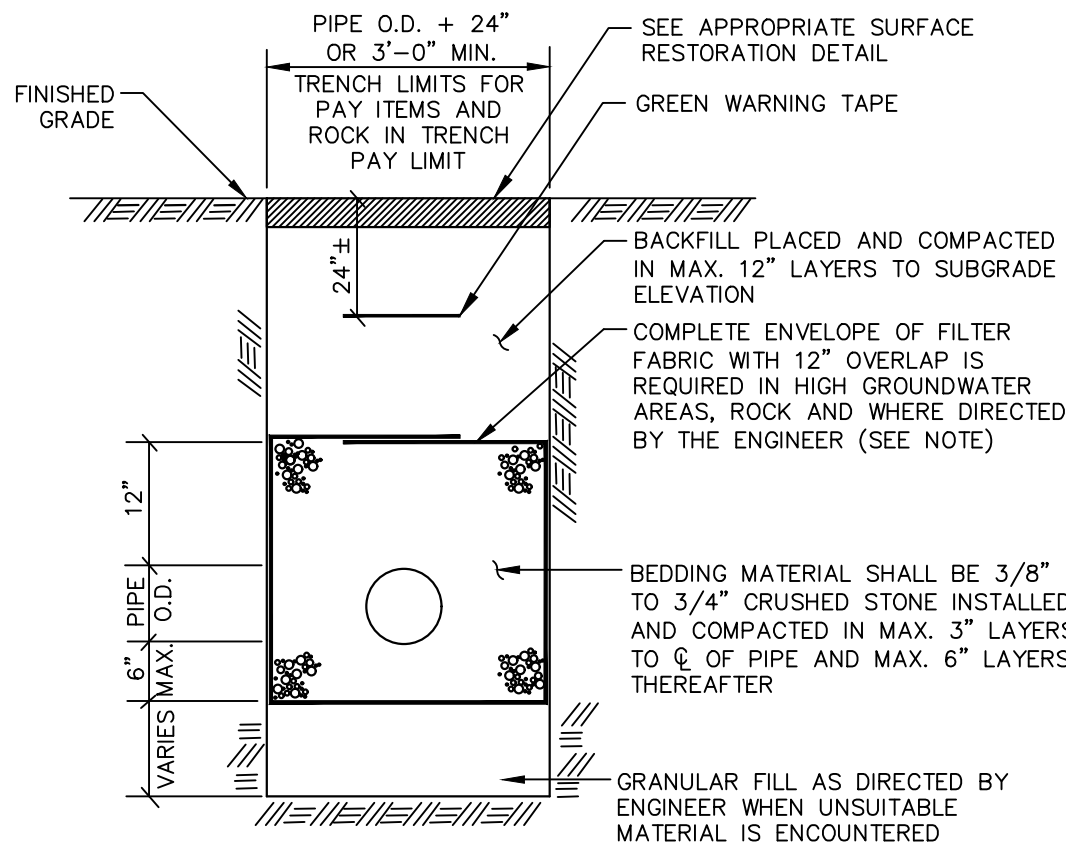
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PROJECT LOCATION
CHARTER OAK STREET
MANCHESTER, CT

PROJECT TITLE
PARK IMPROVEMENTS
CHARTER OAK WEST

SHEET TITLE
DETAILS

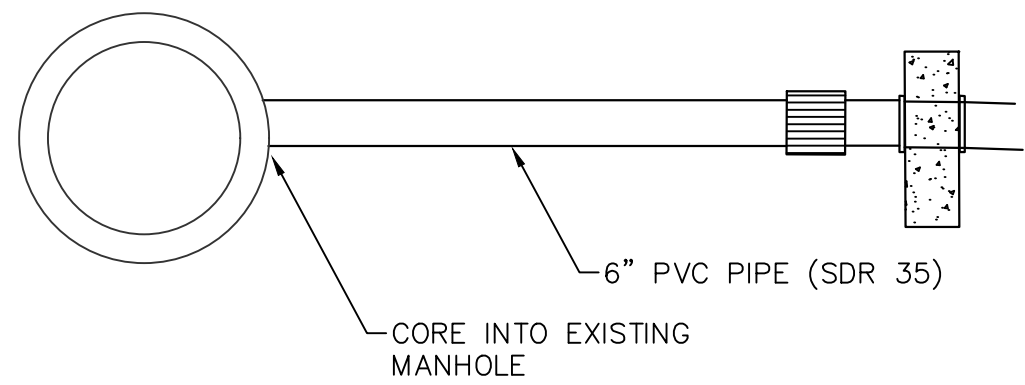
SHEET NUMBER
13 of 18



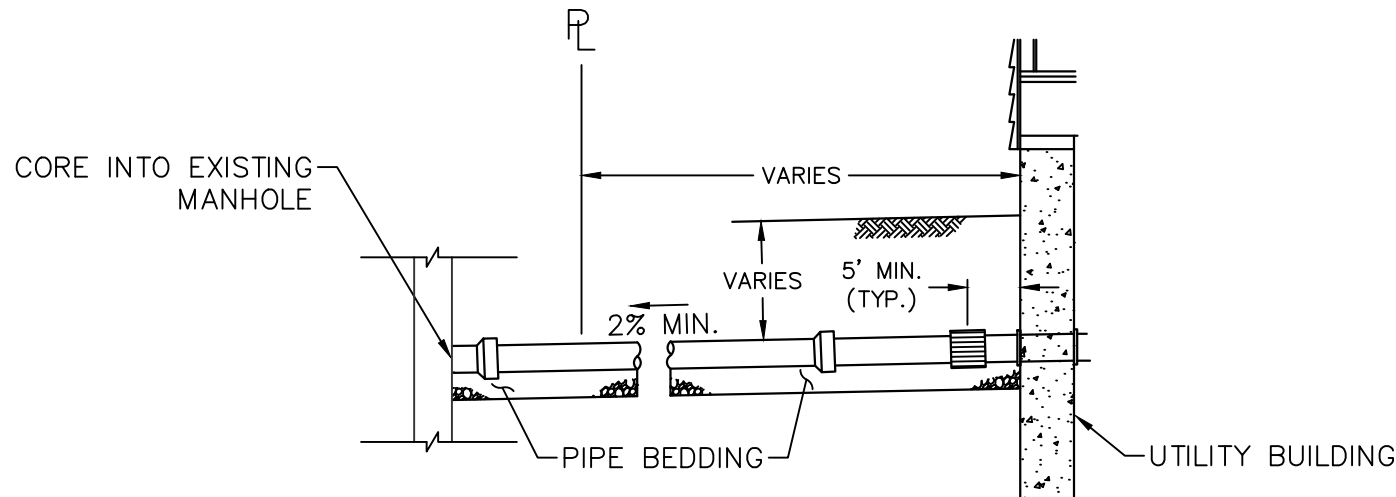
NOTE:
IN ALL OTHER AREAS, AT A MINIMUM, BEDDING MATERIAL SHALL EXTEND TO THE TOP OF THE PIPE AND BE COVERED WITH FILTER FABRIC ACROSS THE ENTIRE WIDTH OF THE TRENCH.

TYPICAL TRENCH DETAIL (SANITARY SEWER)

NOT TO SCALE



PLAN

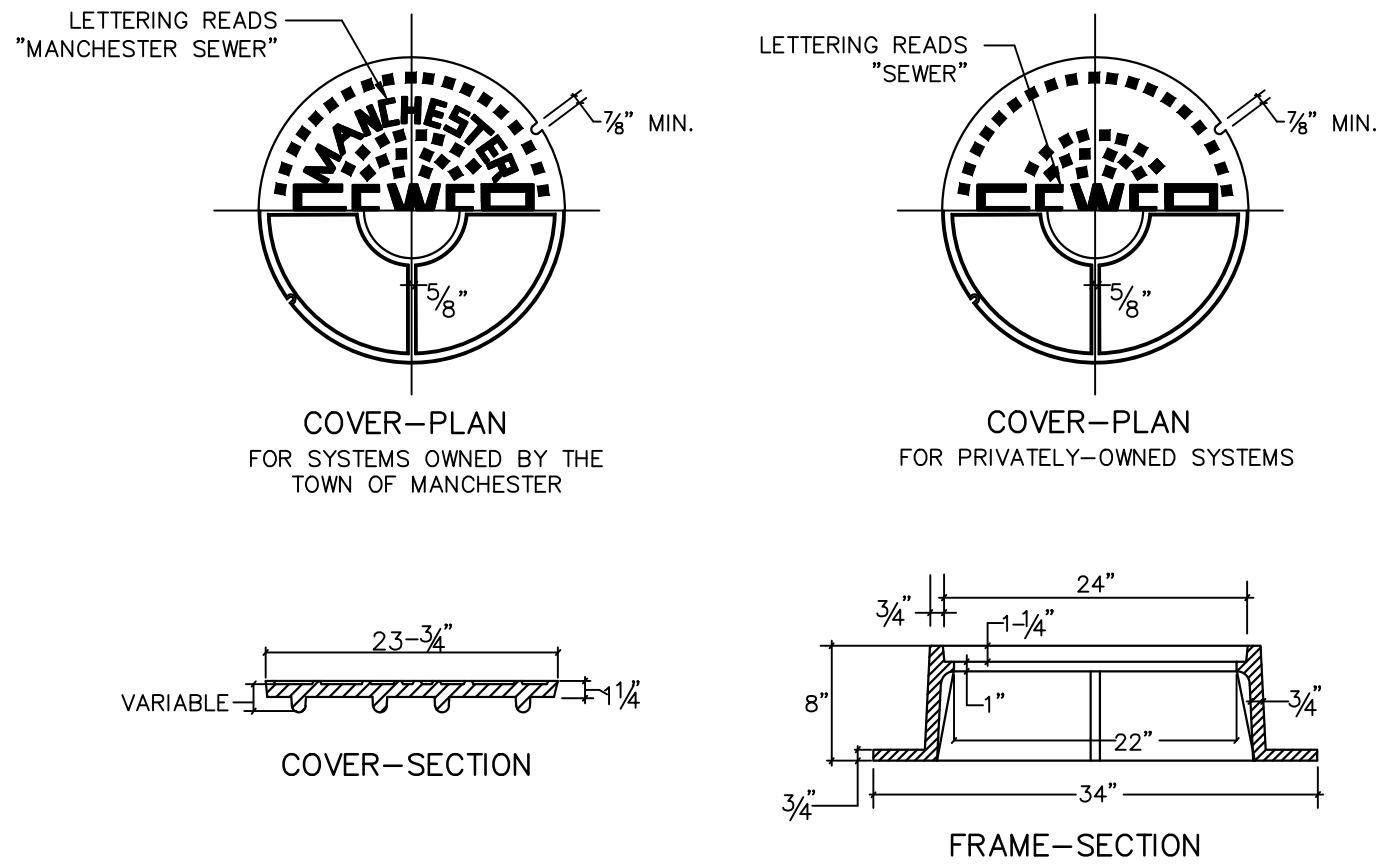


ELEVATION

NOTE:
EXACT LOCATION AND ELEVATION OF SERVICE CONNECTIONS TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION.

6" SANITARY LATERAL CONNECTION (PAY ITEM: "6" PVC SANITARY SEWER LATERAL")

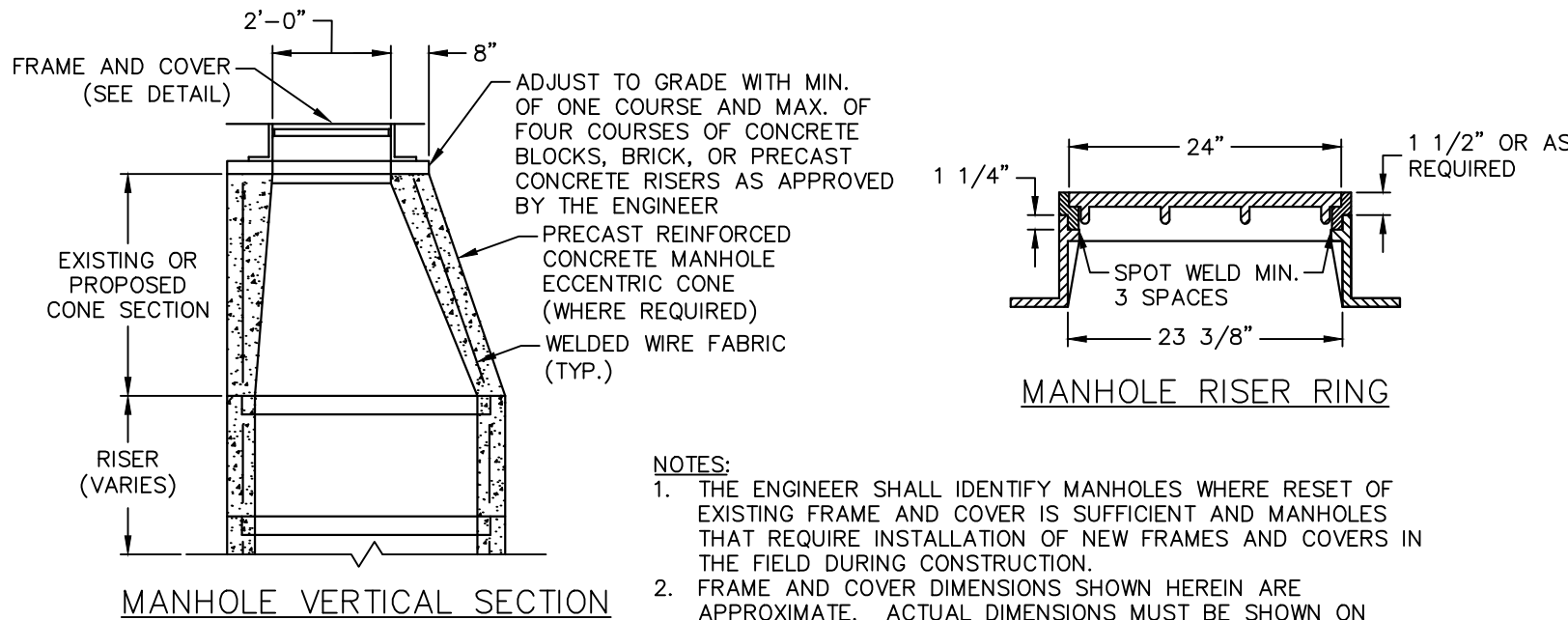
NOT TO SCALE



- NOTES:
- MANHOLE FRAMES AND COVERS SHALL BE THE MODEL AND MANUFACTURER LISTED IN THE CONTRACT SPECIFICATIONS.
 - BOLTS FOR BOLTED COVERS SHALL BE 1/2" STAINLESS STEEL.

SANITARY SEWER MANHOLE FRAME AND COVER

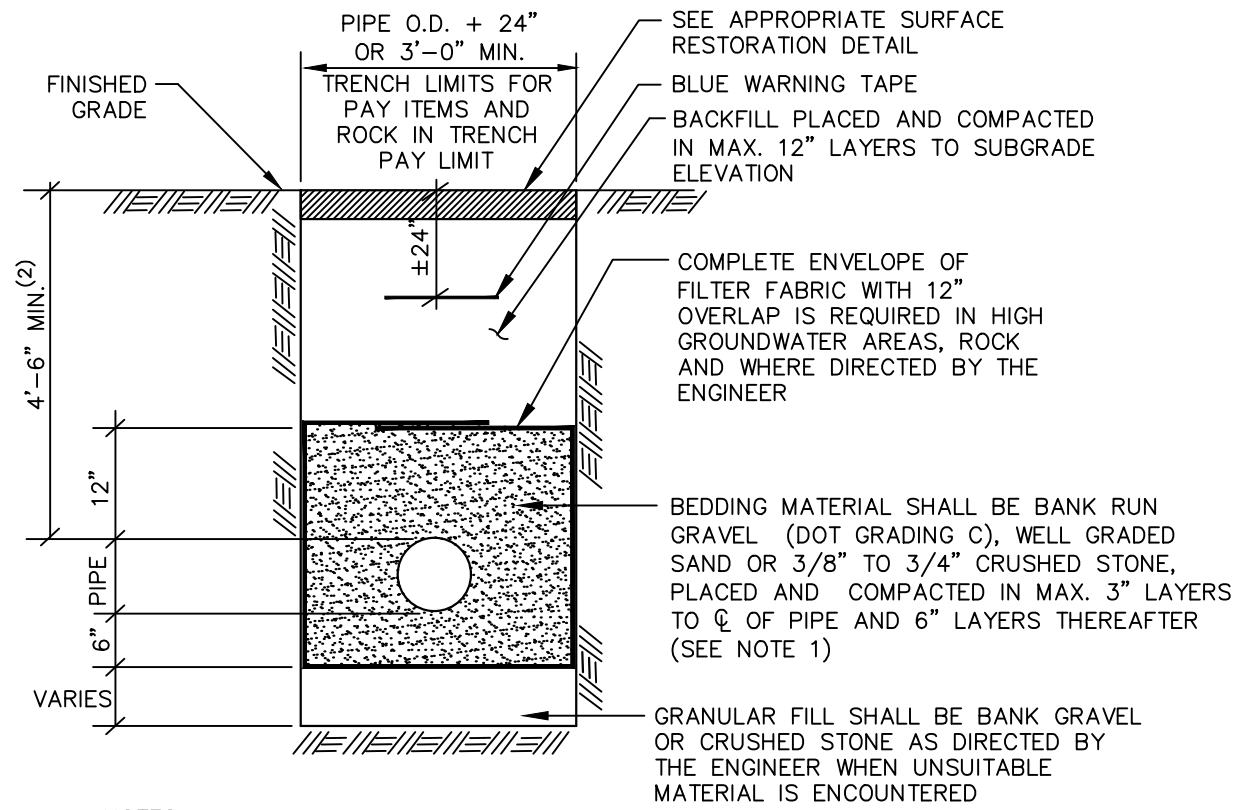
NOT TO SCALE



- NOTES:
- THE ENGINEER SHALL IDENTIFY MANHOLES WHERE RESET OF EXISTING FRAME AND COVER IS SUFFICIENT AND MANHOLES THAT REQUIRE INSTALLATION OF NEW FRAMES AND COVERS IN THE FIELD DURING CONSTRUCTION.
 - FRAME AND COVER DIMENSIONS SHOWN HEREIN ARE APPROXIMATE. ACTUAL DIMENSIONS MUST BE SHOWN ON SHOP DRAWING SUBMITTALS AND APPROVED BY THE ENGINEER.
 - ALL MANHOLE FRAMES COVERS SHALL BE TEMPORARILY SET FLUSH WITH THE BINDER COURSE OF PAVEMENT. A MANHOLE RISER RING SHALL BE INSTALLED TO RAISE MANHOLE COVER TO FINISHED GRADE PRIOR TO INSTALLATION OF THE FINAL SURFACE COURSE OF PAVEMENT AT NO ADDITIONAL COST TO THE TOWN.

RESET MANHOLE TO GRADE

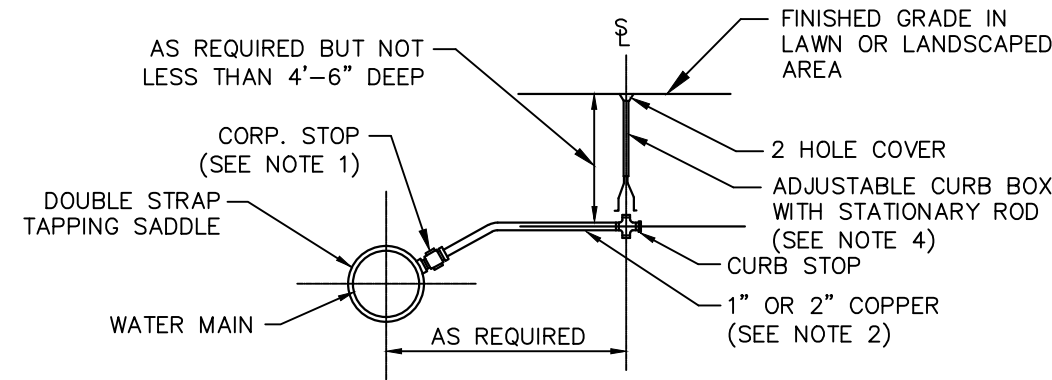
NOT TO SCALE



- NOTES:
- CRUSHED STONE SHALL ONLY BE USED IN HIGH GROUNDWATER CONDITIONS AS DIRECTED BY THE ENGINEER.
 - ALL WATER MAIN WITH LESS THAN 4'-6" OF COVER SHALL BE INSULATED UNLESS APPROVED OTHERWISE BY THE ENGINEER. SEE TYPICAL TRENCH DETAIL (INSULATED WATER) FOR ADDITIONAL INFORMATION.

TYPICAL TRENCH DETAIL (WATER)

NOT TO SCALE



- NOTES:
- THE TOP OF THE CORPORATION AND THE FIRST THREE (3) FEET OF COPPER TUBING SHALL BE INSTALLED NO HIGHER THAN THE TOP OF THE WATER MAIN.
 - NO INTERMEDIATE SIZES (i.e. 3/4", 1 1/2", 1 3/4") ARE ALLOWED FOR COPPER SERVICES. ANY SERVICE REQUIREMENT GREATER THAN 2" COPPER SHALL BE CLIP (4" MIN.) WITH THE SHUT-OFF LOCATED AT THE MAIN. COPPER TUBING SHALL BE CONTINUOUS WITH NO COUPLINGS BETWEEN THE CORPORATION STOP AND THE CURB STOP.
 - IN GENERAL, ALL EXISTING SERVICES THAT ARE CONSTRUCTED OF MATERIALS OTHER THAN COPPER TUBING BETWEEN THE CURB STOP AND METER SHALL BE REPLACED UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
 - TOP SECTION OF VALVE BOX WITH FLANGE SHALL BE SET AT FINISHED GRADE OVER CURB STOP COVER WHEN LOCATED WITHIN PAVED AREAS AND SIDEWALK.

TYPICAL WATER SERVICE CONNECTION

NOT TO SCALE



TOWN OF MANCHESTER PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION

494 MAIN STREET - P.O. BOX 191
MANCHESTER, CT 06045-0191

LEGEND	
	WETLAND BOUNDARY
	RETAINING WALL
	CURB WALL
	STONE WALL
	STOCKADE FENCE
	WIRE FENCE
	CHAIN LINK FENCE
	PROPERTY LINE
	RAILROAD TRACKS
	SILT FENCE
	CONCRETE MONUMENT
	GRANITE MONUMENT
	IRON PIPE
	IRON ROD
	CONTROL POINT
	DRILL HOLE
	UTILITY POLE
	UTILITY POLE WITH LIGHT
	TRAFFIC SPAN POLE
	ELECTRIC BOX
	WETLAND FLAG
	LIGHT POLE
	CONIFEROUS TREE
	DECIDUOUS TREE
	SANITARY MANHOLE
	DRAINAGE MANHOLE
	CATCH BASIN
	CULVERT END
	HYDRANT
	CURB STOP
	WATER VALVE
	BUTTERFLY VALVE
	BLOW OFF
	SIGN
	DOUBLE POST SIGN
	MAIL BOX
	BOLLARD
	CONTROLLER CABINET
	GAS GATE
	TELEPHONE BOX
	CATV TUBE

PROJECT NUMBER
2021078

FILENAME
2021078-PLAN-DETAILS.DWG

NO.	DATE	FILE
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PROJECT LOCATION
CHARTER OAK STREET
MANCHESTER, CT

PROJECT TITLE
PARK IMPROVEMENTS
CHARTER OAK WEST

SHEET TITLE

DETAILS

SHEET NUMBER

14 of 18



TOWN OF MANCHESTER
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
494 MAIN STREET — P.O. BOX 191
MANCHESTER, CT 06045-0191

LEGEND	
	WETLANDS BOUNDARY
	RETAINING WALL
	GUIDE WALL
	STONE WALL
	STOCKADE FENCE
	WIRE FENCE
	CHAIN LINK FENCE
	PROPERTY LINE
	RAILROAD TRACKS
	SILT FENCE
	CONCRETE MONUMENT
	GRANITE MONUMENT
	IRON PIPE
	IRON ROD
	CONTROL POINT
	DRILL HOLE
	UTILITY POLE
	UTILITY POLE WITH LIGHT
	ELECTRIC BOX
	WETLAND FLAG
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	CATCH BASIN
	CULVERT END
	HYDRANT
	CURB STOP
	WATER VALVE
	BUTTERFLY VALVE
	BLOW OFF
	SIGN
	DOUBLE POST SIGN
	MAIL BOX
	ROLLARD
	CONTROLLER CABINET
	GAS GATE
	TELEPHONE BOX
	CATV TUBE

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MANCHESTER, CT

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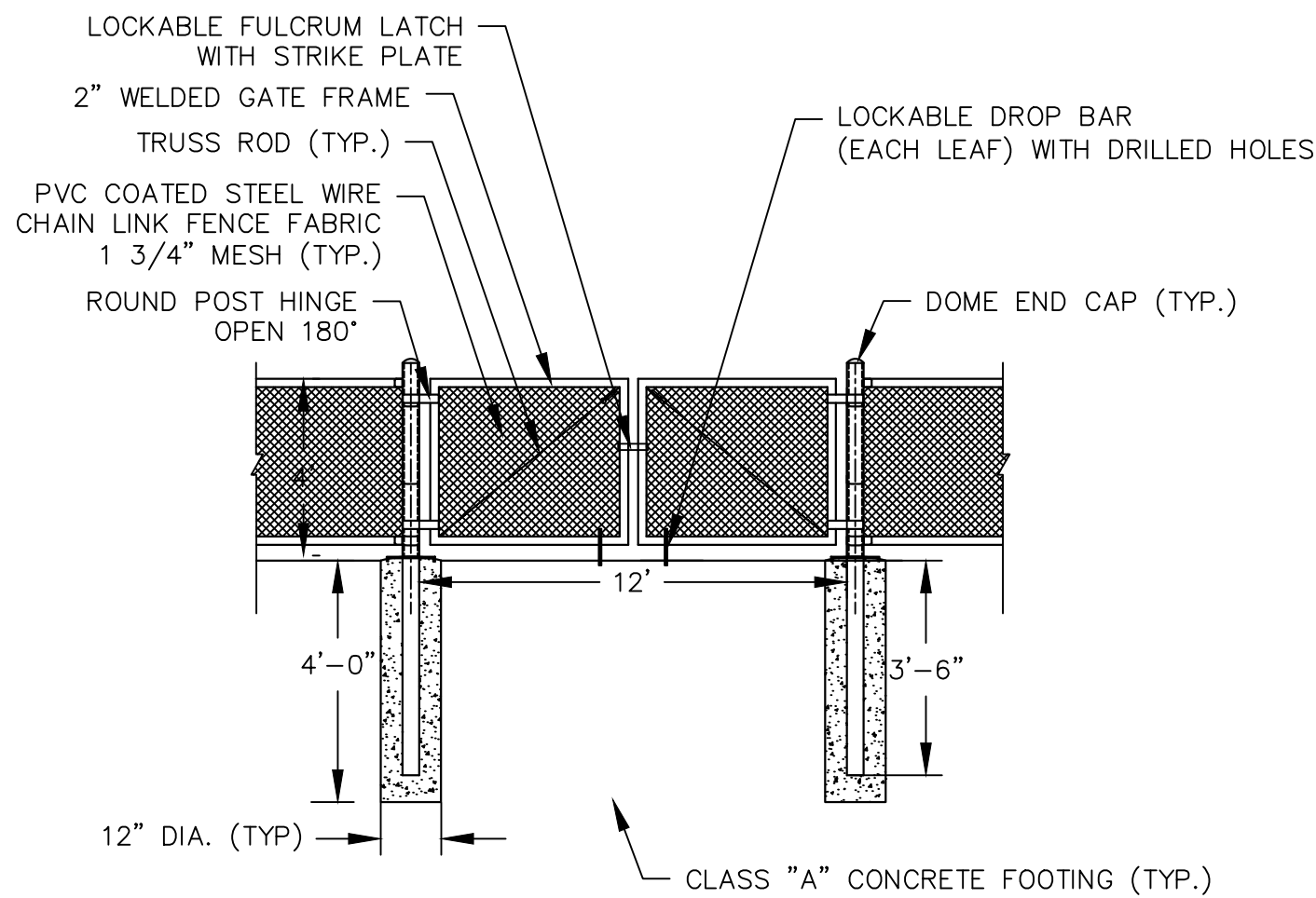
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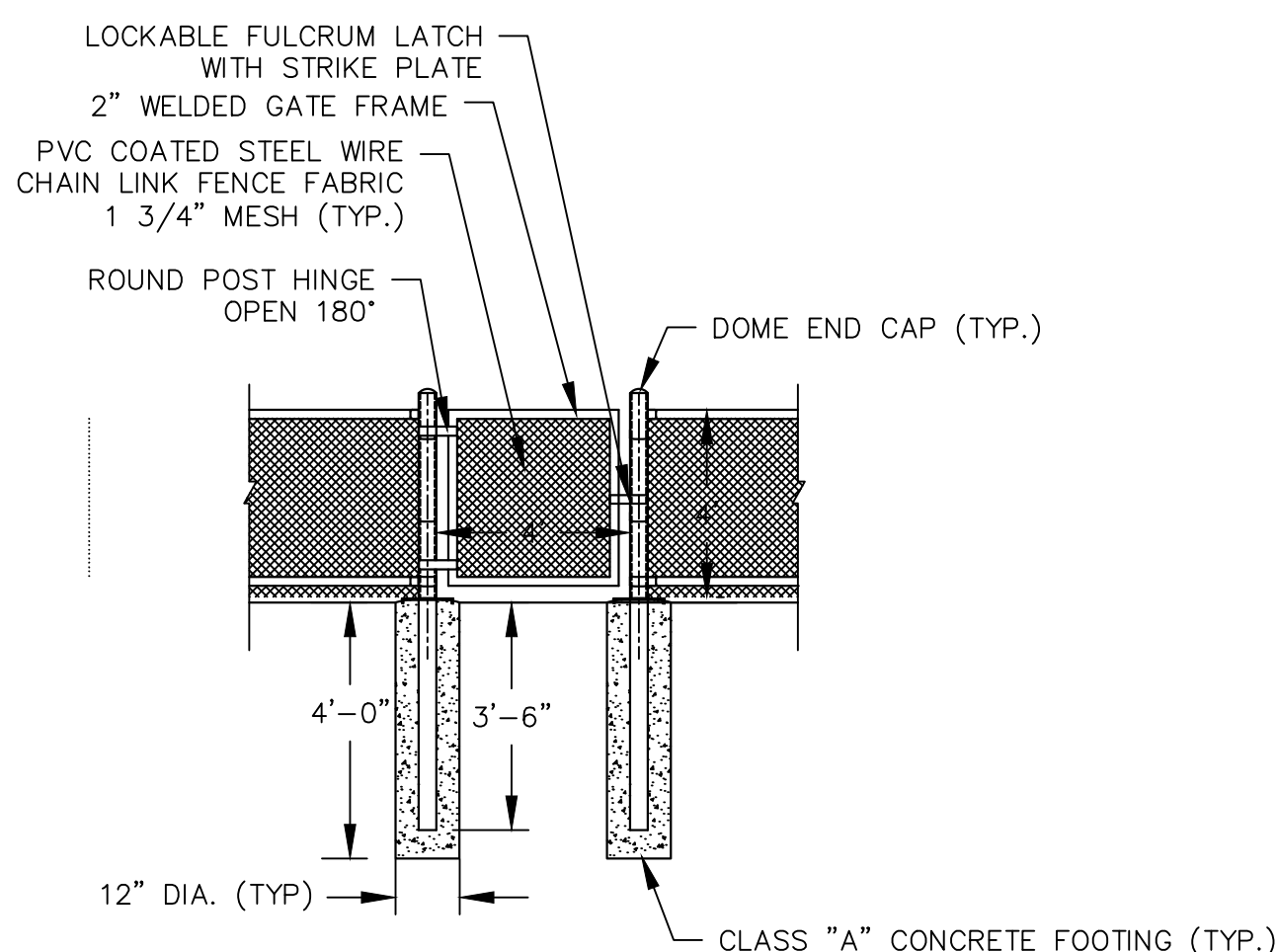
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15 of 18



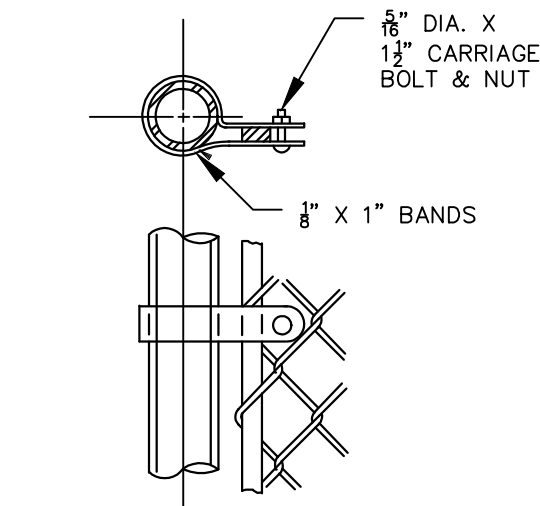
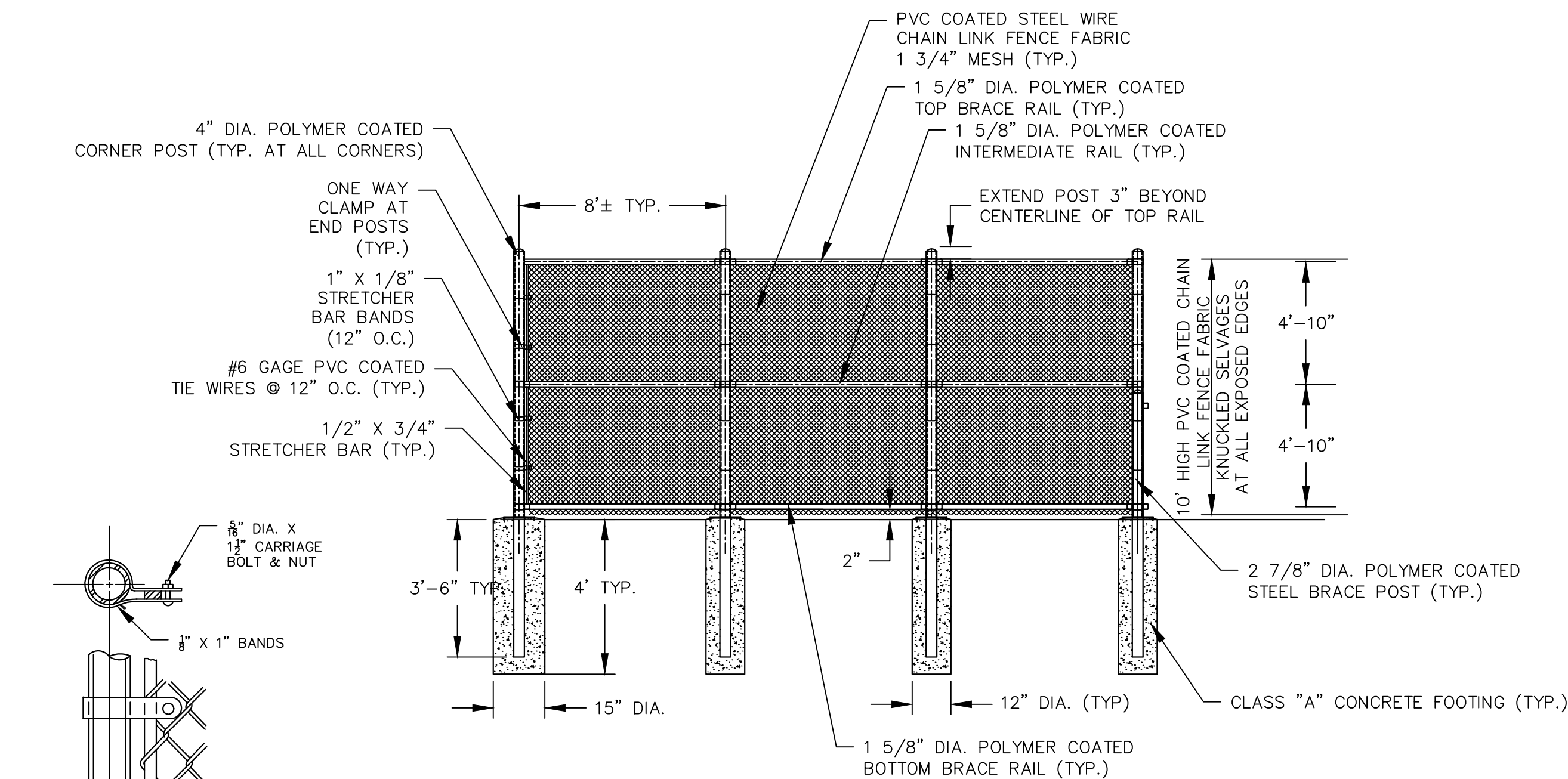
4" HIGH CHAIN LINK DOUBLE GATE

NOT TO SCALE



4" HIGH CHAIN LINK SINGLE GATE

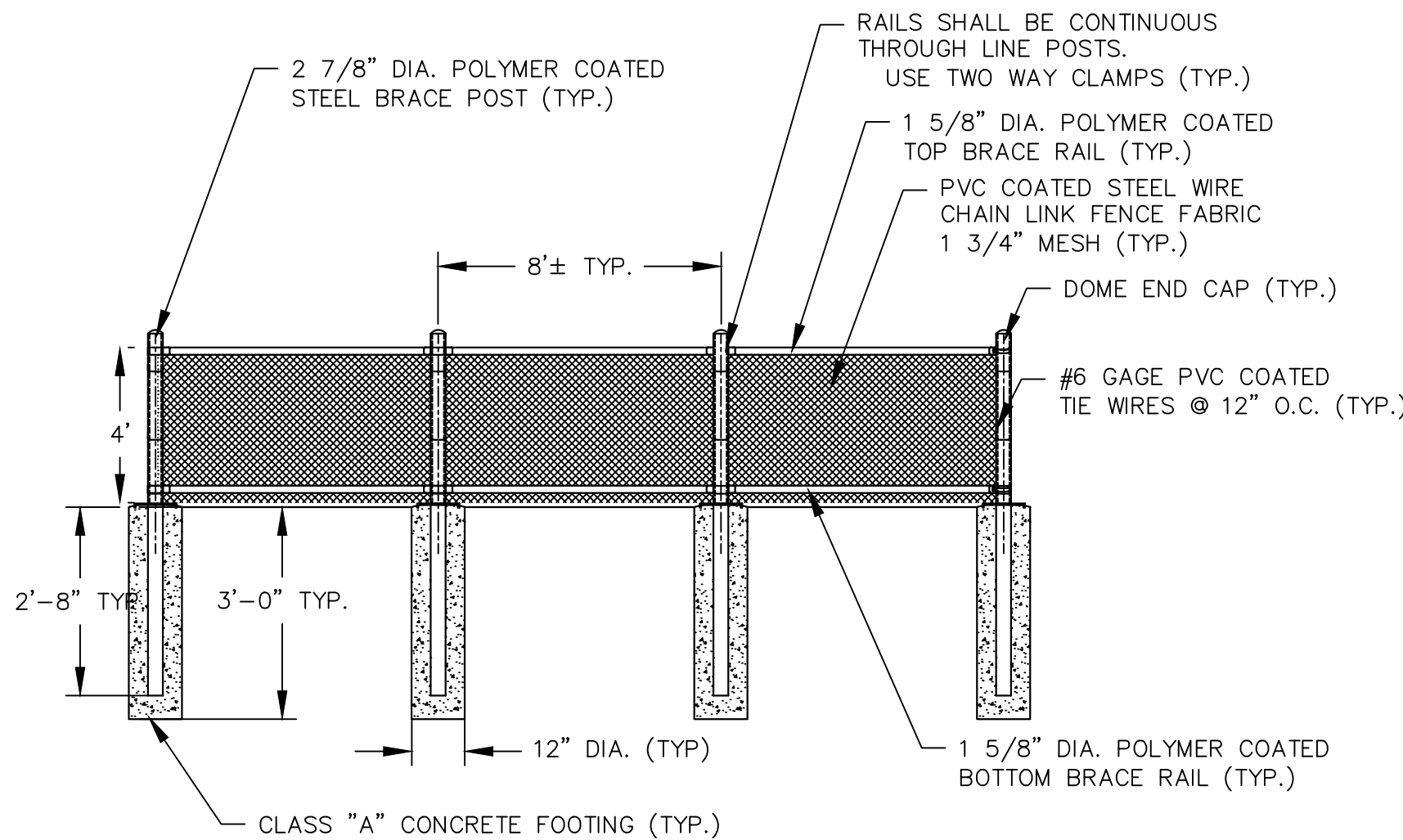
NOT TO SCALE



STRETCHER BAR ATTACHMENTS

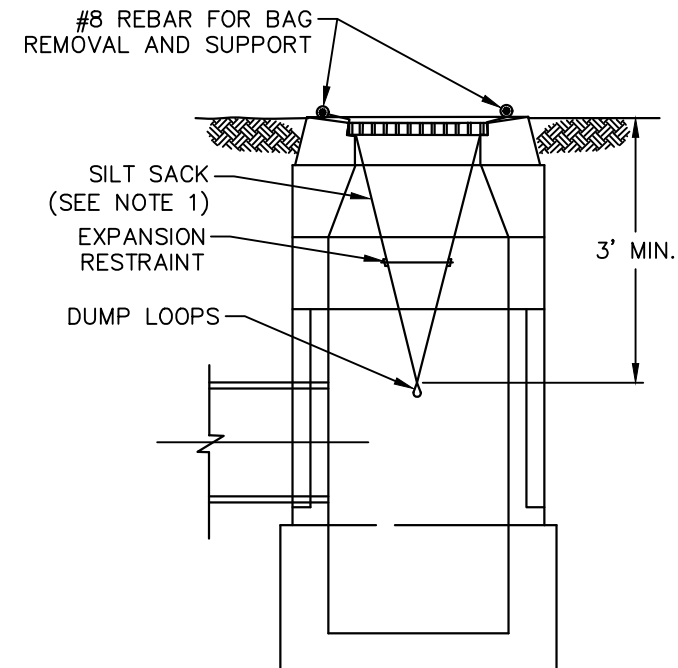
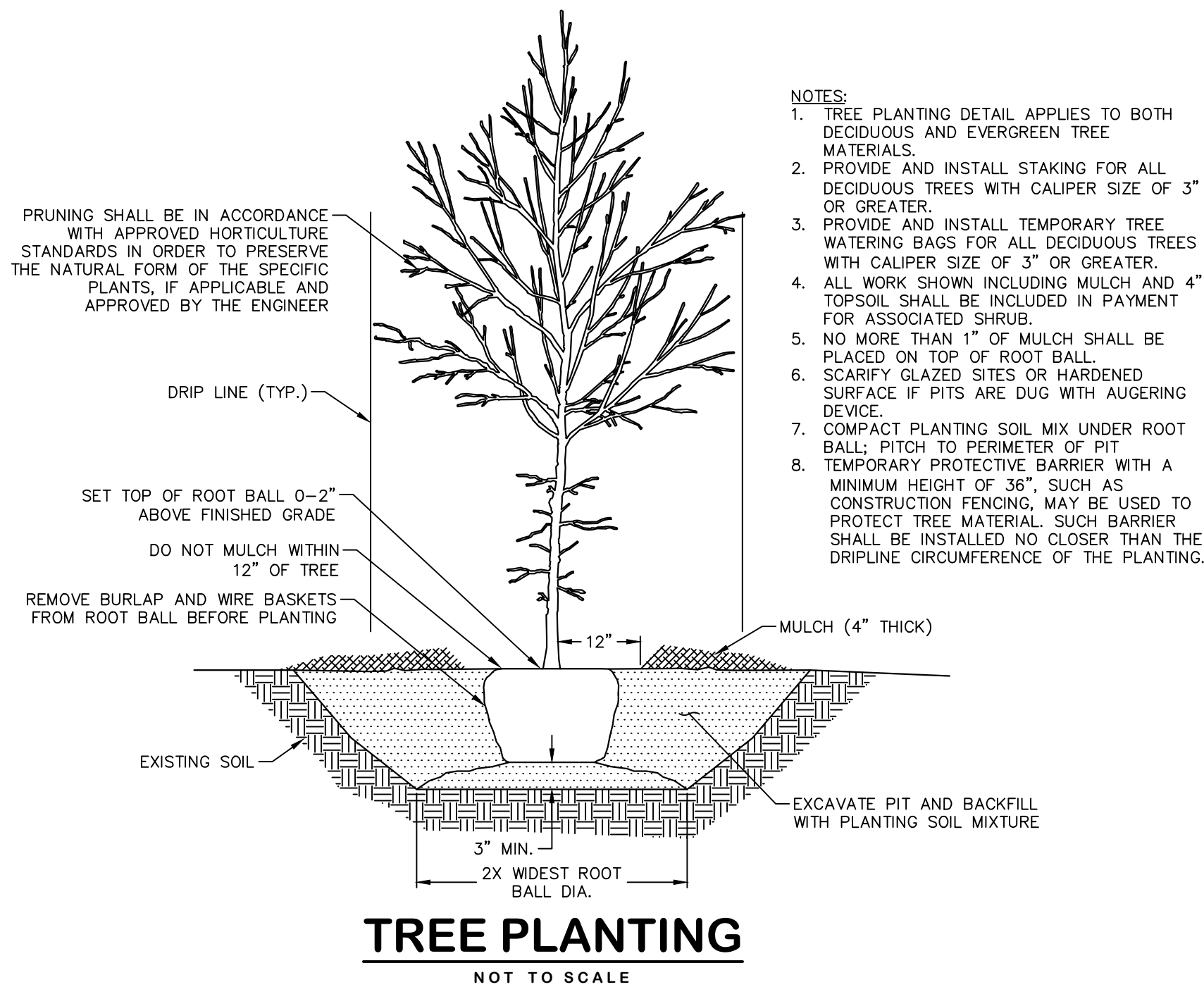
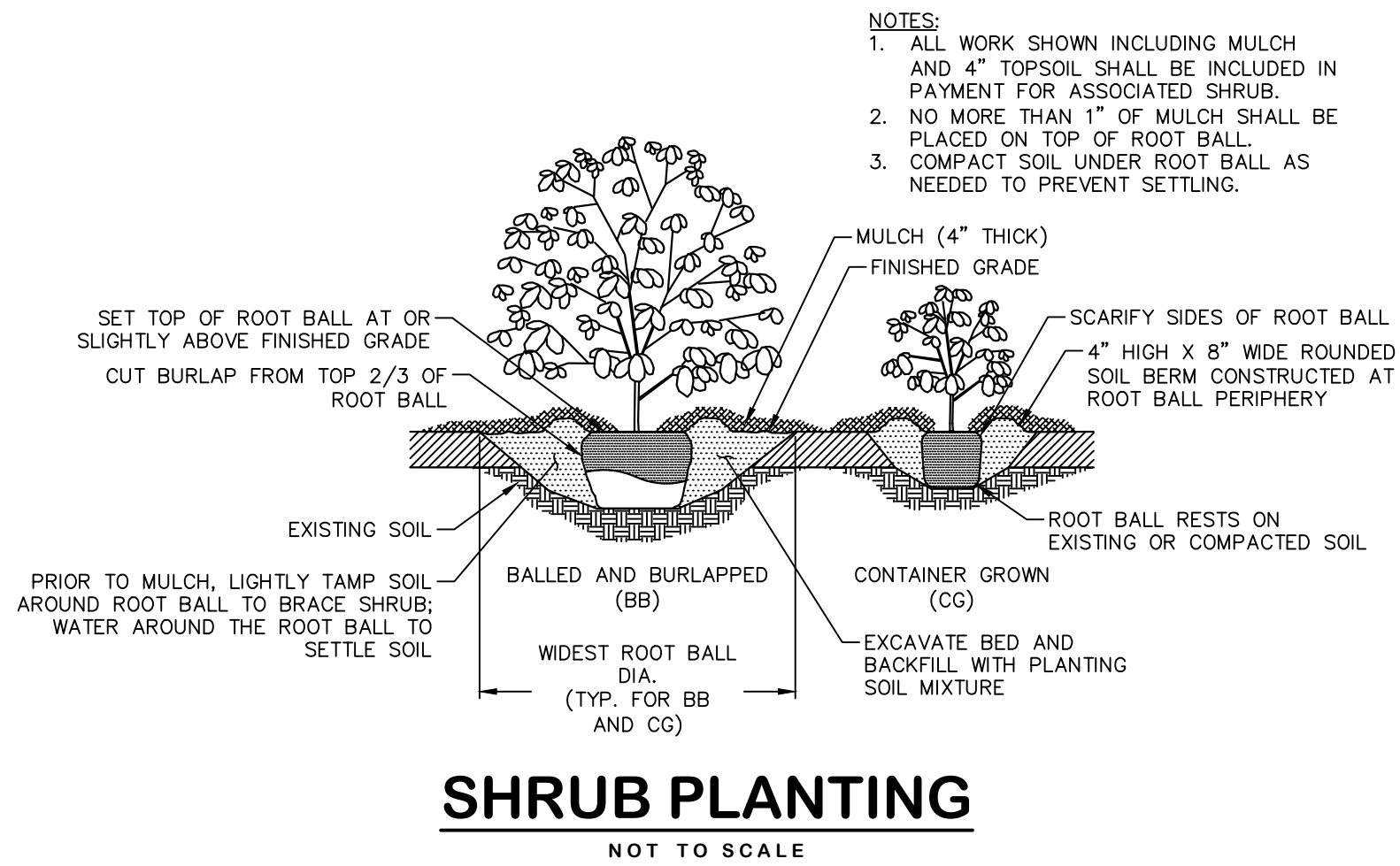
10' HIGH CHAIN LINK FENCE

NOT TO SCALE

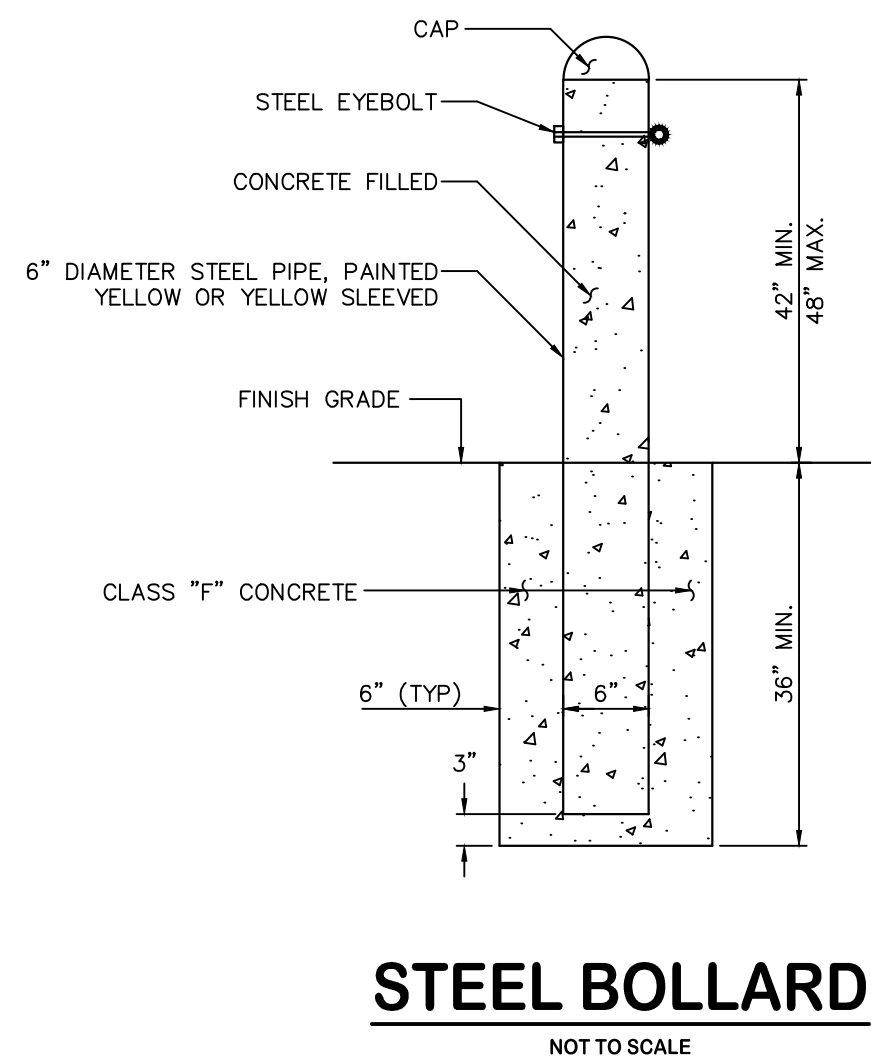
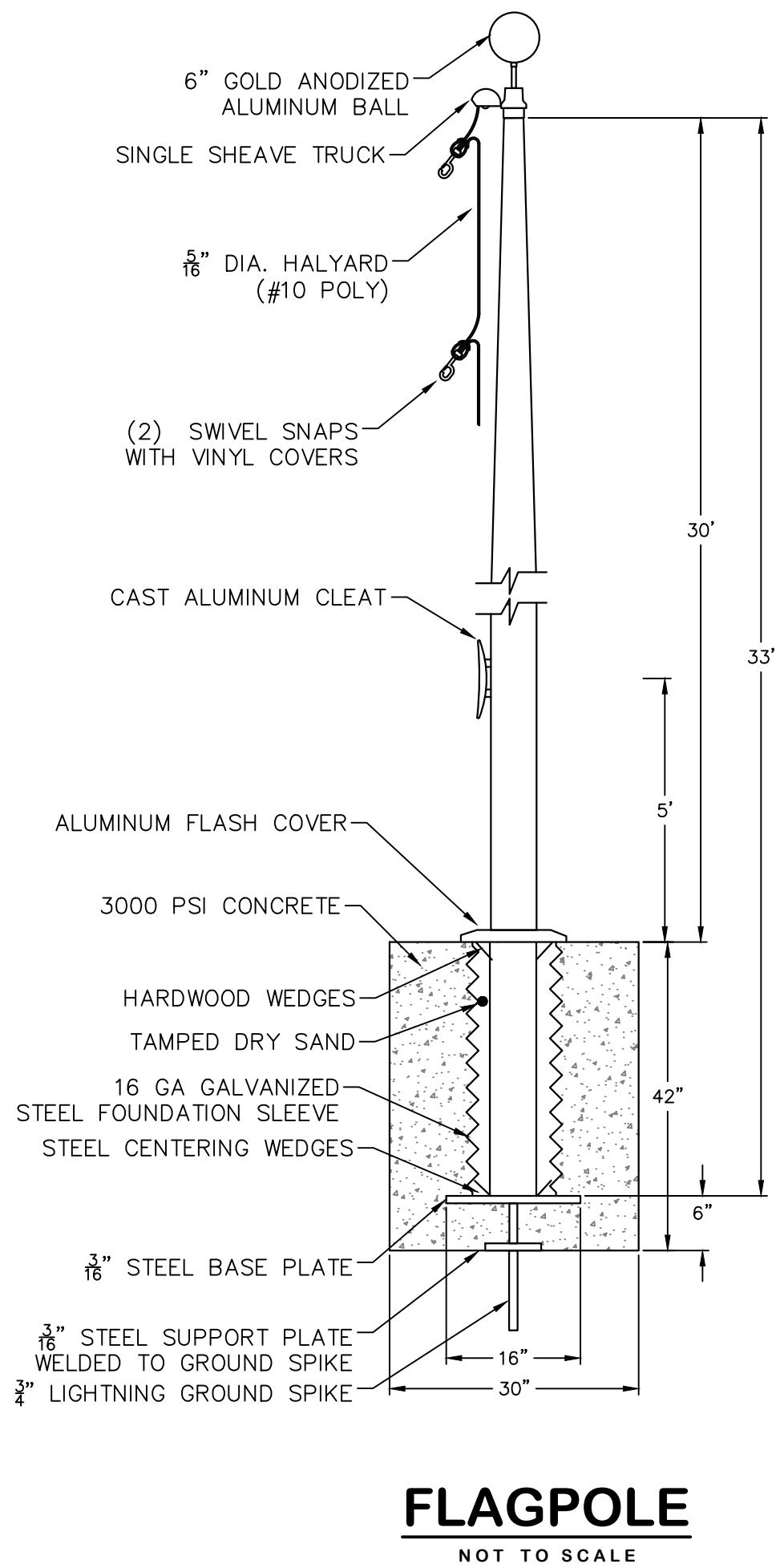
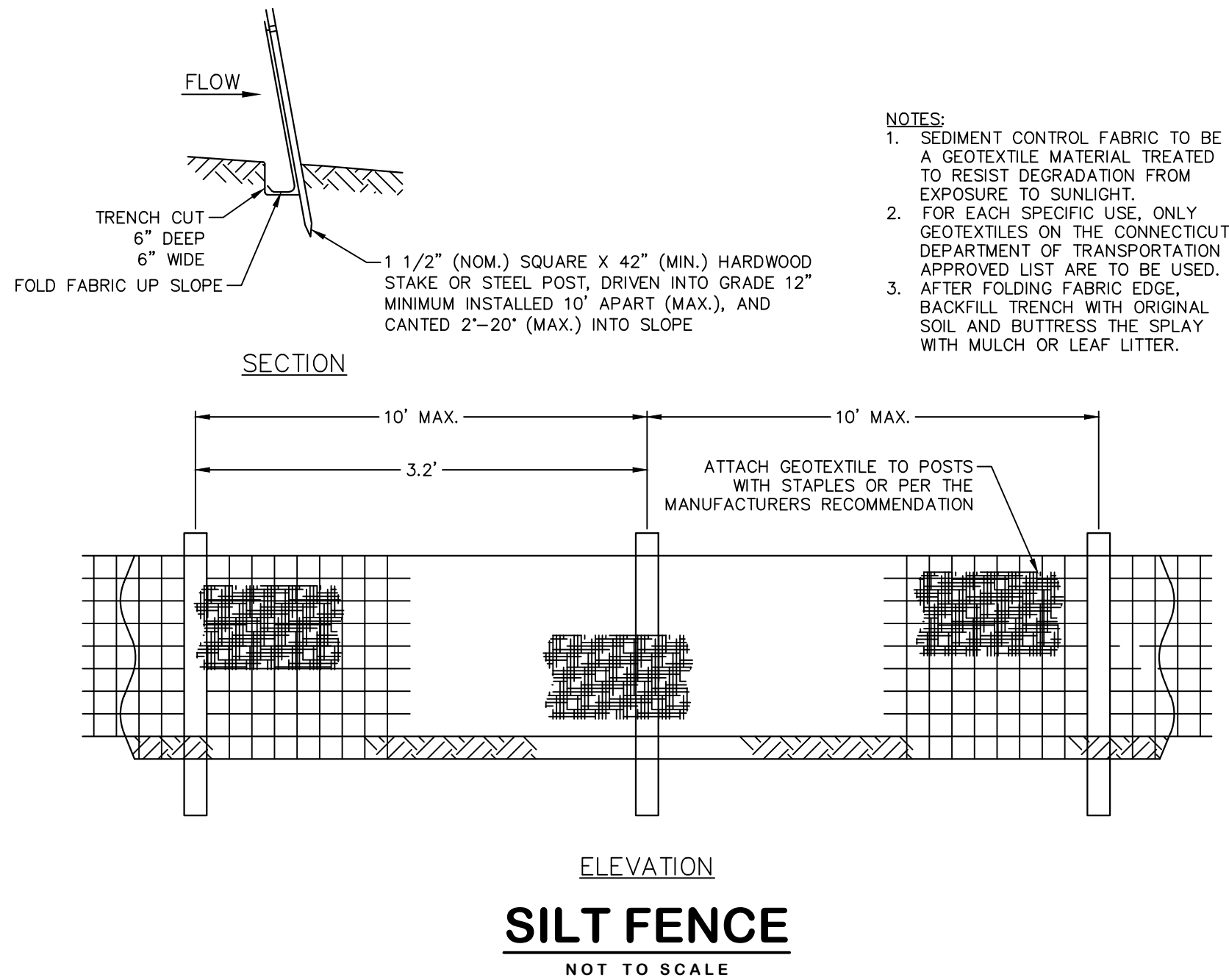
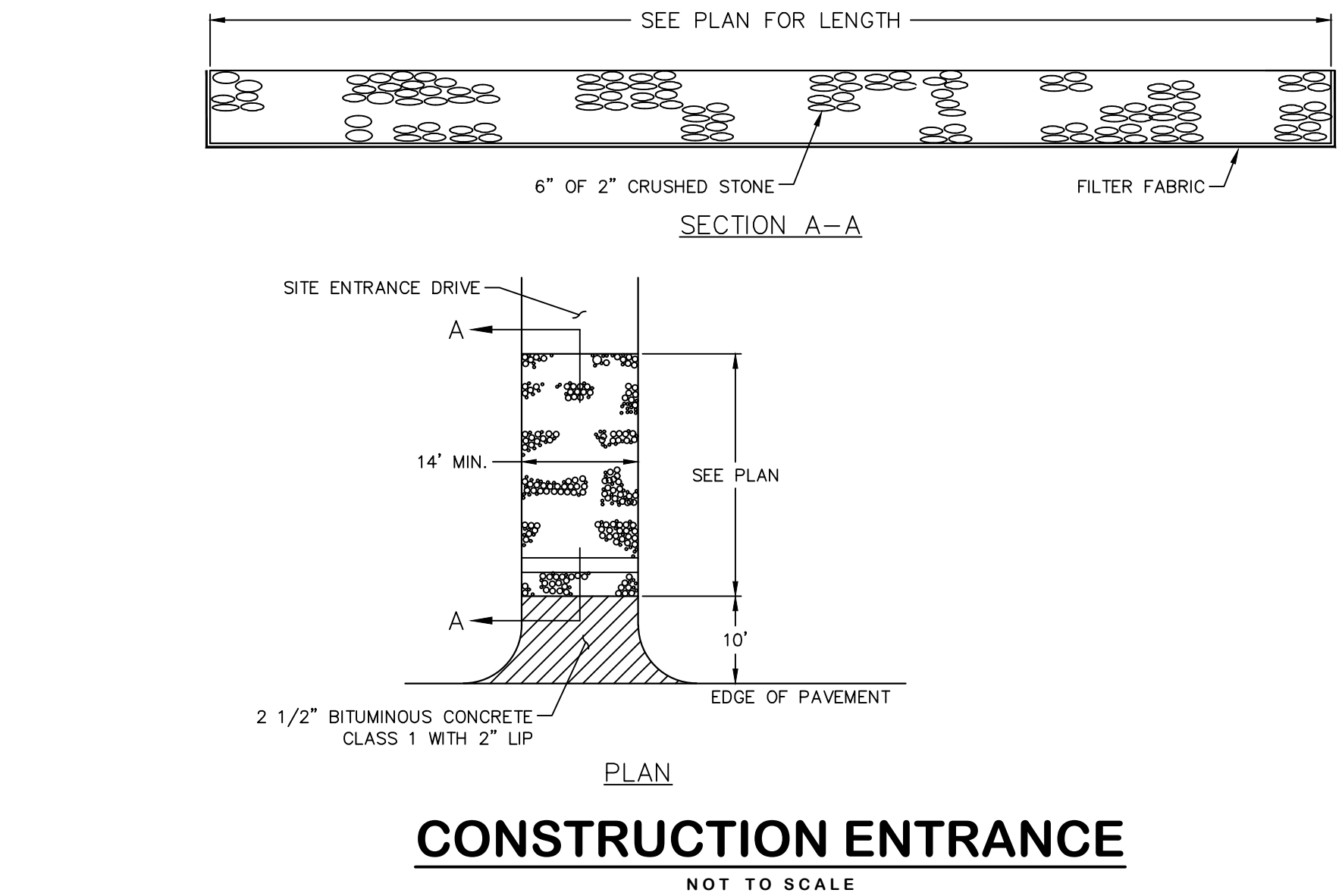


4" HIGH CHAIN LINK FENCE

NOT TO SCALE



- NOTES:**
- SILT SACKS SHALL BE HI-FLOW SILTSACK® TYPE A FOR TYPE "C-L" CB TOPS AND TYPE B WITH CURB DEFLECTORS FOR TYPE "C" CB TOPS OR OTHER STRUCTURES WITH CURB INLETS AS MANUFACTURED BY ACF ENVIRONMENTAL, INC OR APPROVED EQUAL.
 - SILT SACKS SHALL BE PROVIDED WITH INTERNAL OVERFLOWS.
 - SILT SACKS SHALL BE EMPTIED WHEN THEY HAVE COLLECTED 6" TO 12" OF SEDIMENT. INSPECT EVERY 1 TO 2 WEEKS AND AFTER EVERY MAJOR RAINFALL EVENT.



TOWN OF MANCHESTER
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ENGINEERING DIVISION
494 MAIN STREET - P.O. BOX 191
MANCHESTER, CT 06045-0191

LEGEND	
WETLANDS BOUNDARY	LIGHT POLE
RETAINING WALL	CONIFEROUS TREE
GUIDE WALL	DECIDUOUS TREE
STONE WALL	SANITARY MANHOLE
STOCKADE FENCE	DRAINAGE MANHOLE
WIRE FENCE	CATCH BASIN
CHAIN LINK FENCE	CULVERT END
PROPERTY LINE	HYDRANT
RAILROAD TRACKS	CURB STOP
SILT FENCE	WATER VALVE
CONCRETE MONUMENT	BUTTERFLY VALVE
GRANITE MONUMENT	BLOW OFF
IRON PIPE	SIGN
IRON ROD	DOUBLE POST SIGN
CONTROL POINT	MAIL BOX
DRILL HOLE	BOLLARD
UTILITY POLE	CONTROLLER CABINET
UTILITY POLE WITH LIGHT	GAS GATE
TRAFFIC SPAN POLE	TELEPHONE BOX
ELECTRIC BOX	CATV TUBE
WETLAND FLAG	

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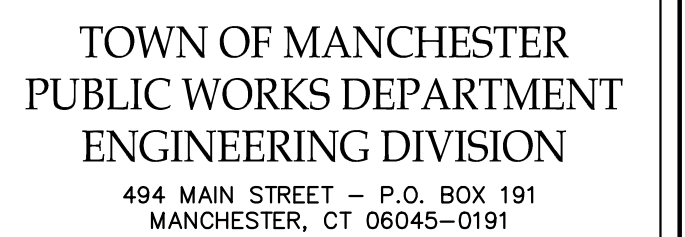
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MANCHESTER, CT**

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CHARTER OAK WEST**

SHEET TITLE
DETAILS

SHEET NUMBER
16 of 18



PROJECT NUMBER
2021078

FILENAME
2021078-PLAN-PZC.DWG

[illegible]

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**CHARTER OAK STREET
MANCHESTER, CT**

PROJECT TITLE

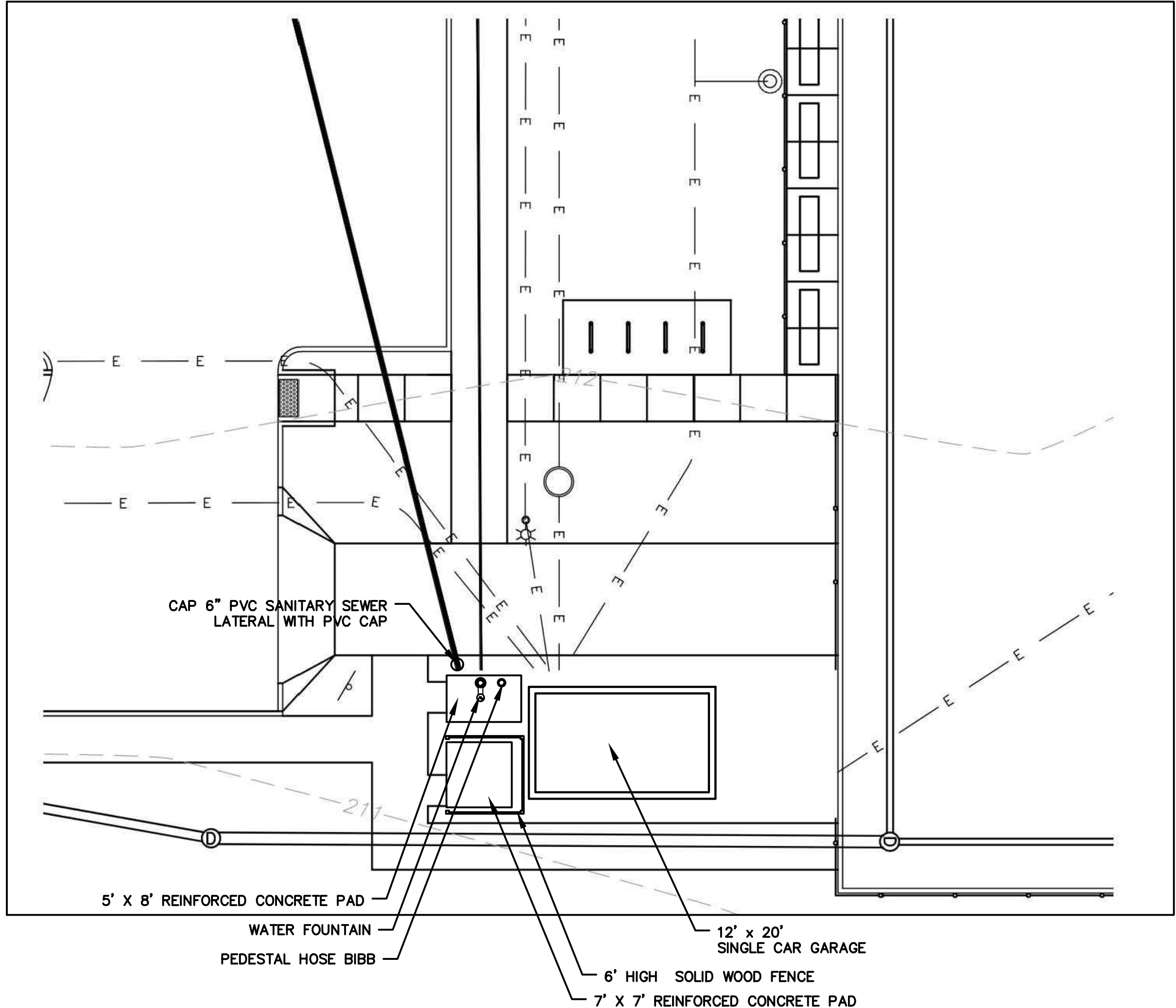
**PARK IMPROVEMENTS
CHARTER OAK WEST**

SHEET TITLE

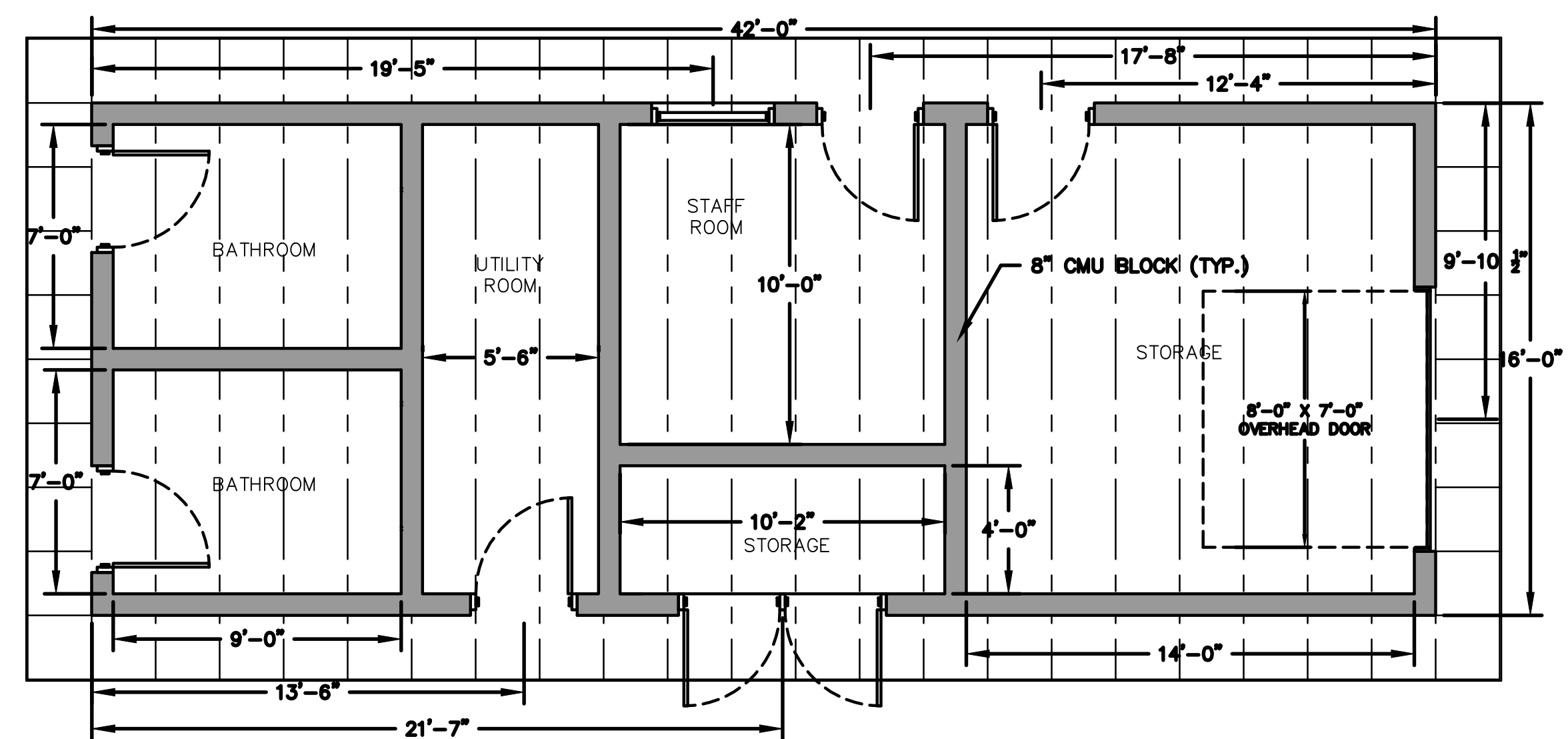
DETAILS

SHEET NUMBER

17 of 18

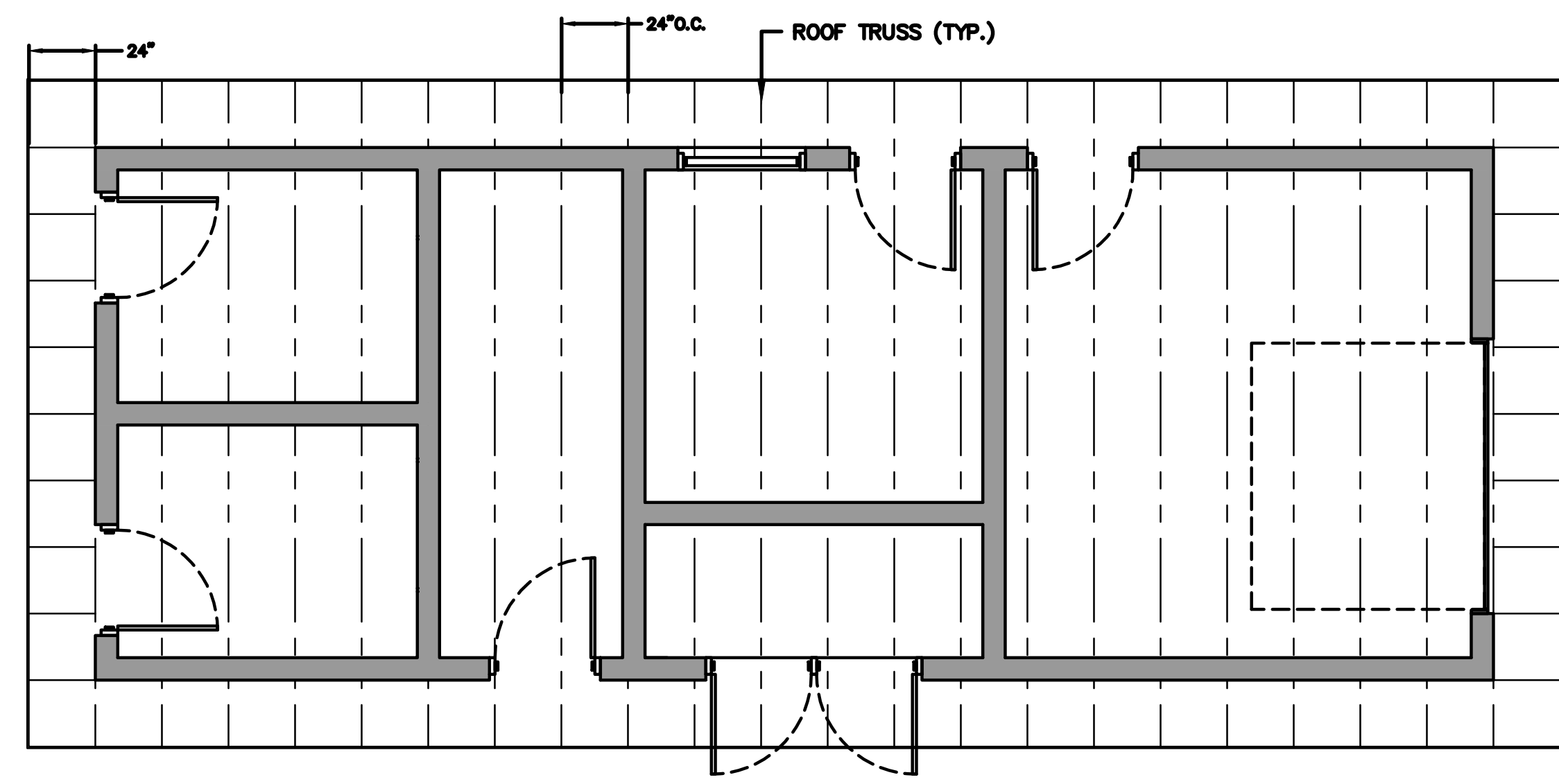


UTILITY BUILDING
ALTERNATE



GENERAL LAYOUT PLAN

SEE ELECTRICAL AND MECHANICAL
PLANS FOR ADDITIONAL DETAIL



ROOFING PLAN



TOWN OF MANCHESTER
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
494 MAIN STREET - P.O. BOX 191
MANCHESTER, CT 06045-0191

LEGEND	
WETLANDS BOUNDARY	LIGHT POLE
RETAINING WALL	CONIFEROUS TREE
GUIDE WALL	DECIDUOUS TREE
STONE WALL	SANITARY MANHOLE
STOCKADE FENCE	DRAINAGE MANHOLE
WIRE FENCE	CATCH BASIN
CHAIN LINK FENCE	CULVERT END
PROPERTY LINE	HYDRANT
RAILROAD TRACKS	CURB STOP
SILT FENCE	WATER VALVE
CONCRETE MONUMENT	BUTTERFLY VALVE
GRANITE MONUMENT	BLOW OFF
IRON PIPE	SIGN
IRON ROD	DOUBLE POST SIGN
CONTROL POINT	MAIL BOX
DRILL HOLE	BOLLARD
UTILITY POLE	CONTROLLER CABINET
UTILITY POLE WITH LIGHT	GAS GATE
TRAFFIC SPAN POLE	TELEPHONE BOX
ELECTRIC BOX	CATV TUBE
WETLAND FLAG	

PROJECT NUMBER
2021078

FILENAME
2021078-PLAN.DWG

NO.	DATE	FILE
-	04/17/24	BID PLANS

DRAWN BY:
CHECKED BY: JL
RELEASED BY: TB

DRAWING SCALE
HORIZONTAL: 1/4" = 1'-0"
OR AS NOTED
GRAPHIC SCALE

DATUM
HORIZONTAL: NAD83 VERTICAL: NAVD88

PROJECT LOCATION
CHARTER OAK STREET
MANCHESTER, CT

PROJECT TITLE
PARK IMPROVEMENTS
CHARTER OAK WEST

SHEET TITLE
UTILITY BUILDING

SHEET NUMBER
18 of 18

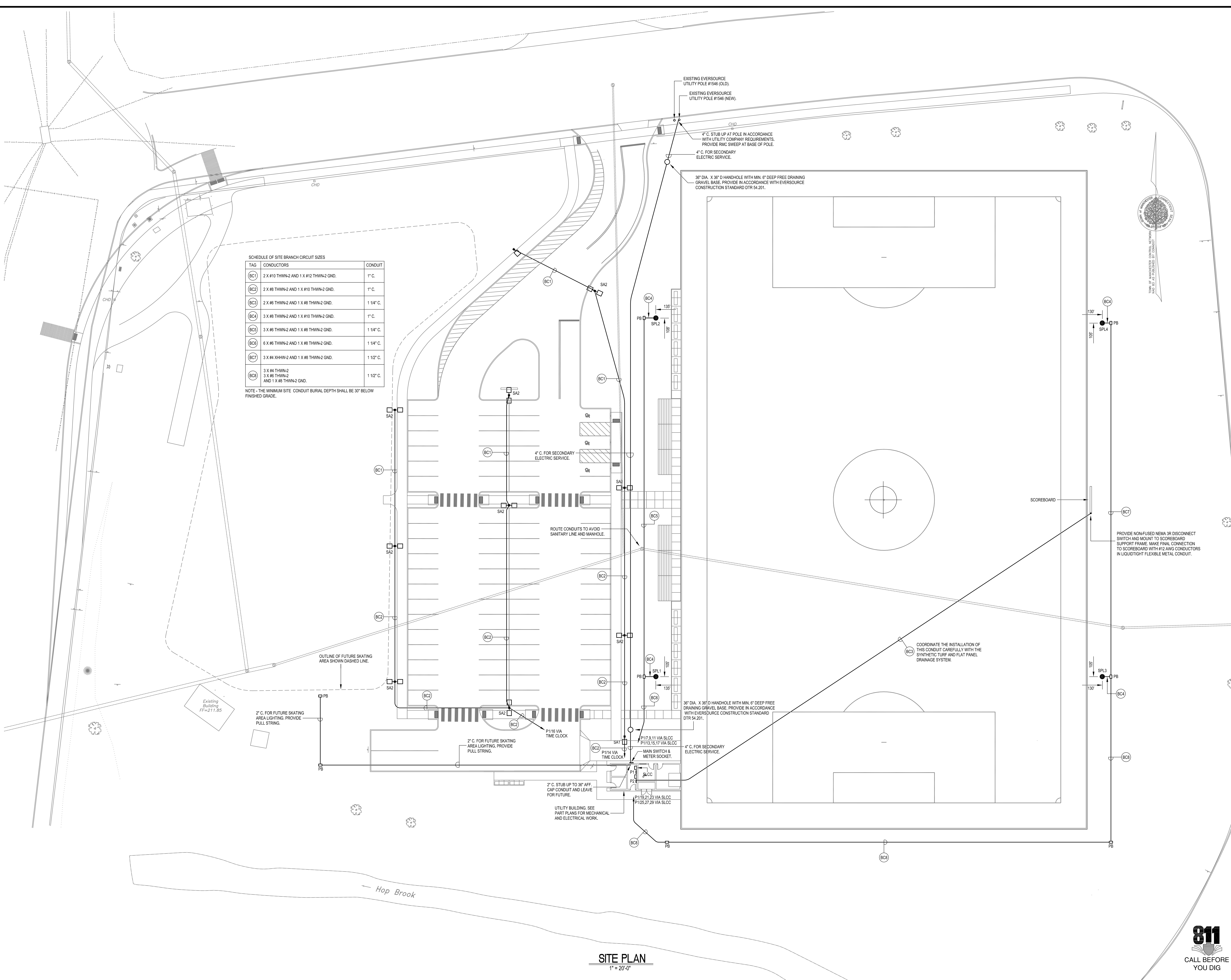
PARK IMPROVEMENTS CHARTER OAK WEST MANCHESTER, CONNECTICUT

BEMIS ASSOCIATES, L.L.C.
Consulting Engineers
185 Main Street
Farmington, CT 06032
Tel: (860) 321-7070
Fax: (860) 321-7070
www.bemisassociates.com

TITLE
SITE ELECTRICAL PLAN

DATE **2/1/2024**

DWG. NO.
SE-1



SITE PLAN
1" = 20'-0"

SITE LIGHTING PULL BOX DETAIL

NTS

TOILET EXHAUST FAN EF-1 WIRING DIAGRAM

NTS

TYPICAL CALL-FOR-AID SYSTEM RISER DIAGRAM

NTS

UTILITY BUILDING FLOOR PLAN - LIGHTING AND POWER

1/4" = 1'-0"

LIGHT FIXTURE SCHEDULE - UTILITY BUILDING AND PARKING LOT	
TYPE	BASIC DESCRIPTION
A	LENSED MULTIPURPOSE STRIP LIGHT
B	WET LOCATION WALL SCONCE
C	EMERGENCY LIGHT
C1	WET LOCATION REMOTE EMERGENCY LIGHTING HEAD
SA1	SINGLE HEAD SITE LIGHTING STANDARD
SA2	TWO HEAD SITE LIGHTING STANDARD

MANUFACTURE AND MODEL	LAMP	LENS/REFLECTOR	MOUNTING	REMARKS
COLUMBIA #MPSA-35MM-ON-EU	LEDS, 3600 LUMENS, 3500°K, 80 CRI	CURVED FROSTED ACRYLIC LENS	SURFACE/CEILING	-
EVENLITE #WLEM-BZ-C	LEDS, 1000 LUMENS, 5000°K	POLYCARBONATE REFRACTOR LENS	SURFACE/WALL	EMERGENCY BATTERY, PHOTOCELL ACTIVATION, COLD TEMPERATURE OPERATION
EVENLITE #X-4N42-L127-H	2 - 12V 7W LED MR-16	-	SURFACE/WALL	INTERNAL HEATER FOR -20°K OPERATION
EVENLITE #PRW-LED-1MMV-H12	1 - 1.5W LED, 5000°K	SEALED BEAM	SURFACE/WALL	-
RAB #ALEDOT150PSS-07-3001	LEDS, 14349 LUMENS, 5000°K, 85 CRI	SPECULAR REFLECTOR TYPE 3 OPTICS	30' POLE	-
RAB #2ALEDOT150PSS-07-3002	LEDS, 28698 LUMENS, 5000°K, 85 CRI	SPECULAR REFLECTOR TYPE 3 OPTICS	30' POLE	-

ELECTRICAL DRAWING LEGEND

SYMBOLS

- LENSED STRIP LIGHT FIXTURE.
- VANDAL RESISTANT SCONCE LIGHT FIXTURE 7' AFF.
- EMERGENCY LIGHT FIXTURE, MOUNT WITH TOP AT 7' AFF.
- REMOTE EMERGENCY LIGHTING HEAD 7' AFF.
- SINGLE HEAD SITE LIGHTING STANDARD.
- TWO HEAD SITE LIGHTING STANDARD.
- SPORTS LIGHTING FIXTURE.
- PANELBOARD.
- EQUIPMENT POWER CONNECTION.
- DISCONNECT SWITCH.
- DUPLEX RECEPTACLE 18" AFF UNLESS NOTED DIFFERENTLY.
- DOUBLE DUPLEX RECEPTACLE 18" AFF UNLESS NOTED DIFFERENTLY.
- SINGLE POLE TOGGLE SWITCH 48" AFF UNLESS NOTED DIFFERENTLY.
- CALL-FOR-AID EMERGENCY CALL SWITCH.
- CALL-FOR-AID HORN/STROBE, MOUNT ABOVE DOOR FRAME.
- CONDUIT.
- BRANCH CIRCUIT WIRING IN CONDUIT, CROSS LINES INDICATE NUMBER OF CONDUCTORS.
- BRANCH CIRCUIT WIRING (HOMERUN) IN CONDUIT, CROSS LINES INDICATE NUMBER OF CONDUCTORS.

ABBREVIATIONS

- A AMPS.
- AWG AMERICAN WIRE GAUGE.
- C CONDUIT.
- CB CIRCUIT BREAKER.
- GFCI INDICATES DEVICE WITH INTEGRAL GROUND FAULT INTERRUPTER.
- GND GROUND.
- HD HAND DRYER.
- NTS NOT TO SCALE.
- P POLE.
- PB SITE LIGHTING PULL BOX.
- SLOC SPORTS LIGHTING CONTROL CABINET.
- TC TIME CLOCK.
- V VOLTS.
- WP WEATHERPROOF.

UNDERGROUND CONDUIT DETAIL

NTS

GROUNDING ELECTRODE SYSTEM SCHEMATIC

NTS

POWER RISER DIAGRAM

NTS

NOTES

- 1) PROVIDE WITH HEAT RATED TIN PLATED ALUMINUM BUS BARS AND ALUCU GROUND BAR.
- 2) PROVIDE WITH DOOR-IN-DOOR TRIM.
- 3) PROVIDE WITH BLACK FACE, WHITE CORE ENGRAVED NAMEPLATE.
- 4) PROVIDE CIRCUIT DIRECTORY POUCH.
- 5) PROVIDE WITH TYPE WRITTEN CIRCUIT DIRECTORY REPRESENTING CIRCUITS AS ACTUALLY CONNECTED TO PANEL.
- 6) CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE.

NOTES

- 1) PROVIDE WITH HEAT RATED TIN PLATED ALUMINUM BUS BARS AND ALUCU GROUND BAR.
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SITE LIGHTING STANDARD DETAIL - TYPES SA1 AND SA2

NTS

UNDERGROUND CONDUIT DETAIL

NTS

GROUNDING ELECTRODE SYSTEM SCHEMATIC

NTS

POWER RISER DIAGRAM

NTS

NOTES

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- 6) CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE.

SCHEDULE OF BRANCH CIRCUIT CONDUCTOR SIZES

C.B. SIZE	CIRCUIT SIZE
20A-1P	** 2 X #12 AWG AND 1 X #12 AWG GND. IN 3/4" C.
20A-2P	2 X #12 AWG AND 1 X #12 AWG GND. IN 3/4" C.
20A-3P	3 X #12 AWG AND 1 X #12 AWG GND. IN 3/4" C.
25A-1P	2 X #10 AWG AND 1 X #10 AWG GND. IN 3/4" C.
25A-2P	2 X #10 AWG AND 1 X #10 AWG GND. IN 3/4" C.
25A-3P	3 X #10 AWG AND 1 X #10 AWG GND. IN 3/4" C.
30A-1P	2 X #10 AWG AND 1 X #10 AWG GND. IN 3/4" C.
30A-2P	2 X #10 AWG AND 1 X #10 AWG GND. IN 3/4" C.
30A-3P	3 X #10 AWG AND 1 X #10 AWG GND. IN 3/4" C.
35A-1P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
35A-2P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
35A-3P	3 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
40A-1P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
40A-2P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
40A-3P	3 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
45A-1P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
45A-2P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
45A-3P	3 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
50A-1P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
50A-2P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
50A-3P	3 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
60A-1P	2 X #8 AWG AND 1 X #10 AWG GND. IN 1" C.
60A-2P	2 X #8 AWG AND 1 X #10 AWG GND. IN 1" C.
60A-3P	3 X #8 AWG AND 1 X #10 AWG GND. IN 1" C.

ELECTRICAL LOAD SHEET

ITEM	KW
SPORTS LIGHTING	44.1
PARKING LOT LIGHTING	8.2
INTERIOR LIGHTING	0.3
CONVENIENCE POWER	1.3
HAND DRYERS	3.0
ELECTRIC HEAT	10.5
WATER HEATER	1.7
TOTAL	67.1

67.1KW @ 480V 3 PHASE = 81 AMPS

INSTALL 480V/277V 3 PHASE 4 WIRE 200 AMP SERVICE.

Sports Lighting System Specifications

PART 1 - GENERAL

1.1 SUMMARY

- A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.
- B. The purpose of these specifications is to define the lighting system performance and design standards using an LED lighting source. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.
- C. The sports lighting will be for the following venue:
1. Football / Soccer Field
- D. The primary goals of this sports lighting project are:
1. Guaranteed Light Levels: Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore, light levels are guaranteed to not drop below specified target values for a period of 25 years.
 2. Environmental Light Control: It is the primary goal of this project to minimize light spill to the players, spectators and neighbors.
 3. Cost of Ownership: In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated for the duration of the warranty.
 4. Control and Monitoring: To allow for optimized use of labor resources and avoid unwanted operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.
 - a. Control and monitoring system shall provide control of all existing circuits. Key switches shall be provided to provide field-level control of existing circuit groups.

1.2 ON-FIELD LIGHTING PERFORMANCE

- A. Illumination Levels and Design Factors: Playing surfaces shall be lit to an average target illumination level and uniformly as specified below. Lighting manufacturers will provide a guarantee that light levels will be sustained over the life of the warranty period. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below.
- Manufacturers will provide lumen maintenance data of the LED luminaires used per TM-21-11 and will incorporate the lumen maintenance projections into the lighting designs to ensure target light levels are achieved throughout the guaranteed period of the system. Per IES guidelines, lumen maintenance hours should be reported based on the six multiplier of testing hours.
- | Area of Lighting | Average Target Illumination Levels | Maximum to Minimum Uniformity Ratio | Grid Points | Grid Spacing |
|------------------|------------------------------------|-------------------------------------|-------------|--------------|
| Soccer | 50fc | 2:1 | 84 | 30' x 30' |
| Football | 50fc | 2:1 | 72 | 30' x 20' |
| Bleachers | 10fc | 30:1 | 150 | 10' X 10' |
- B. Color Temperature: The lighting system shall have a minimum color temperature of 5700K and a CRI of >65+.
- C. Playability: Lighting design and luminaire selection should be optimized for playability by reducing glare on-field and providing sufficient uplight.

1. Aiming Angles: To reduce glare, luminaire aiming should ensure the top of the luminaire field angle (based on sample photometric reports) is a minimum of 10 degrees below horizontal.
2. Glare Control Technology - Luminaires selected should have glare control technology including, but not limited to: external louvers, internal shields and louvers, No symmetrical beam patterns are acceptable.
3. Aerial Lighting - Adequate illumination must be provided above the field in order to see the ball in flight. It is recommended that a lighting analysis be performed above the field of play to evaluate the visibility of the ball over its typical trajectory to ensure the participants will adequately see the ball. Calculation planes should be evaluated up to the maximum anticipated height for the level of play.
4. Mounting Heights: To ensure proper aiming angles, minimum mounting heights shall be as described below. Higher mounting heights may be necessary for luminaires with lesser glare control to meet field angle requirements of section 1.2.C.1.

Int Poles	Pole Designation	Pole Height
4	SLP1, SLP2, SLP3, SLP4	70'

1.3 ENVIRONMENTAL LIGHT CONTROL

- A. Light Control Luminaires: All luminaires shall utilize spill light and glare control devices including, but not limited to, internal shields, louvers and external shields. No symmetrical beam patterns are accepted.
- B. Environmental glare impact scans must be submitted showing the maximum candela from the field edge on a map of the surrounding area until 500 candela or less is achieved.
- C. Spill Scans: Spill scans must be submitted indicating the amount of horizontal and vertical footcandles along the specified lines. Light levels shall be provided in 30-foot intervals along the boundary line at 3' above grade.
- D. When the fields are illuminated, light at either home plate shall not exceed 270 Candelas
- E. Sample Photometry: The first page of a photometric report for all luminaire types proposed showing horizontal and vertical axial candle power shall be provided to demonstrate the capability of achieving the specified performance. Reports shall be certified by a qualified testing laboratory with a minimum of five years experience or by a manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products. A summary of the horizontal and vertical aiming angles for each luminaire shall be included with the photometric report.
- F. Field Verification: Lighting manufacturer shall supply field verification of environmental light control using a meter calibrated within the last 12 months:
1. Spill Verification: Illumination levels shall be taken in accordance with IESNA LM-64. The light sensing surface of the light meter should be held 36 inches above the playing surface with the sensing surface horizontal (for horizontal readings) or vertically pointed at the brightest light bank (for max vertical readings)
- 1.4 Cost of Ownership
- A. Manufacturer shall submit a 25 year Cost of Ownership summary that includes energy consumption, anticipated maintenance costs, and control costs. All costs associated with faulty luminaire replacement - equipment rentals, removal and installation labor, and shipping - are to be included in the maintenance costs.

PART 2 - PRODUCT

2.1 SPORTS LIGHTING SYSTEM CONSTRUCTION

- A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, drivers and other enclosures shall be factory assembled, aimed, wired and tested.
- B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A153. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel, galvanized and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO-EN 1481 (for hot dipped galvanizing), or ASTM B689 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.
- C. System Description: Lighting system shall consist of the following:
1. Galvanized steel poles and cross-arm assembly.
 2. Non-approver pole technology:
 - a. Square static cast concrete poles will not be accepted.
 - b. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosion reaction to the soils and long term performance concerns.
 3. Lighting systems shall use concrete foundations. See Section 2.4 for details.
 - a. For a foundation using a pre-stressed concrete base embedded in concrete backfill the concrete shall be air-entrained and have a minimum compressive design strength at 28 days of 3,000 PSI. 3,000 PSI concrete specified for early pole erection, actual required minimum allowable concrete strength is 1,000 PSI. All piers and concrete backfill must bear on and against firm undisturbed soil.
 - b. For anchor bolt foundations or foundations using a pre-stressed concrete base in a suspended pier or re-inforced pier design pole erection may occur after 7 days. Or after a concrete sample from the same batch achieves a certain strength.
 4. Manufacturer will supply all drivers and supporting electrical equipment:
 - a. Remote drivers and supporting electrical equipment shall be mounted approximately 10 feet above grade in aluminum enclosures. The enclosures shall be touch-safe and include drivers and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral drivers are not allowed.
 - b. Manufacturer shall provide surge protection at the pole equal to or greater than 40 kA for each line to ground (Common Mode) as recommended by IEEE C62.41.2_2002.
 5. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
 6. All luminaires, louvers, and cross-arm assemblies shall withstand 150 mph winds and maintain luminaire aiming alignment.
 6. Contactor cabinet to provide on-off control.
 9. Manufacturer shall provide lightning grounding as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.
 - a. Integrated grounding via concrete encased electrode grounding system.
 - b. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780. The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 4 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.
- D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

- A. Electric Power Requirements for the Sports Lighting Equipment:
1. Electric power: 480 Volt, Three Phase
 2. Maximum total voltage drop: Voltage drop to the disconnected switch located on the poles shall not exceed three (3) percent of the rated voltage.
- B. Energy Consumption: The kWh consumption for the field lighting system shall be 490W or less.

2.3 CONTROL

- A. Instant On/Off Capabilities: System shall provide for instant on/off of luminaires.
- B. Lighting Contactor cabinet(s) constructed of NEMA Type 4 aluminum, designed for easy installation with contactors, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.
- C. Contactor control of lights: To minimize wear on drivers and other electrical components and prevent lights from turning on due to communication loss, circuits must be controlled via contactor switching, not dimming driver output to zero.
- D. Dimming: System shall provide for 3-stage dimming (high-medium-low). Dimming will be set via scheduling options (Website, app, phone, fax, email) or via an on-site user interface tablet or device.
- E. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.
- The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute "reset off" commands by commands. Scheduling tool shall be capable of setting curfew limits.
- Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.
- F. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outages is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).

- G. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of luminaire outages, control operation and service. Mobile application will be provided suitable for IOS, Android and BlackBerry devices.
- Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.
1. Cumulative hours shall be tracked to show the total hours used by the facility
 2. Report hours saved by using early off and push buttons by users.
- H. Communication Costs: Manufacturer shall include communication costs for operating the control and monitoring system for a period of 25 years.
- I. Communication with luminaire drivers: Control system shall interface with drivers in electrical components enclosures by means of powerline communication.

2.4 STRUCTURAL PARAMETERS

- A. Wind Loads: Wind loads shall be based on the 2021 International Building Code. Wind loads to be calculated using ASCE 7-16, an ultimate design wind speed of 120 mph and exposure category C.
- B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2013 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-6).
- C. Foundation Design: The foundation design shall be based on soil parameters as outlined in the geotechnical report. If no geotechnical report is available, the foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2021 IBC Table 1906.2.
- D. Foundation Drawings: Project specific foundation drawings stamped by a registered engineer in the state where the project is located are required. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole. These drawings must be submitted at time of bid to allow for accurate pricing.

PART 3 - EXECUTION

3.1 SOIL QUALITY CONTROL

- A. It shall be the Contractor's responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner's approval / payment for additional costs associated with:
1. Providing engineered foundation embedment design by a registered engineer in the State of Connecticut for soils other than specified soil conditions;
 2. Additional materials required to achieve alternate foundation;
 3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

3.2 DELIVERY TIMING

- A. Delivery Timing Equipment On-Site: The equipment must be on-site 6-8 weeks from receipt of approved submittals and receipt of complete order information.

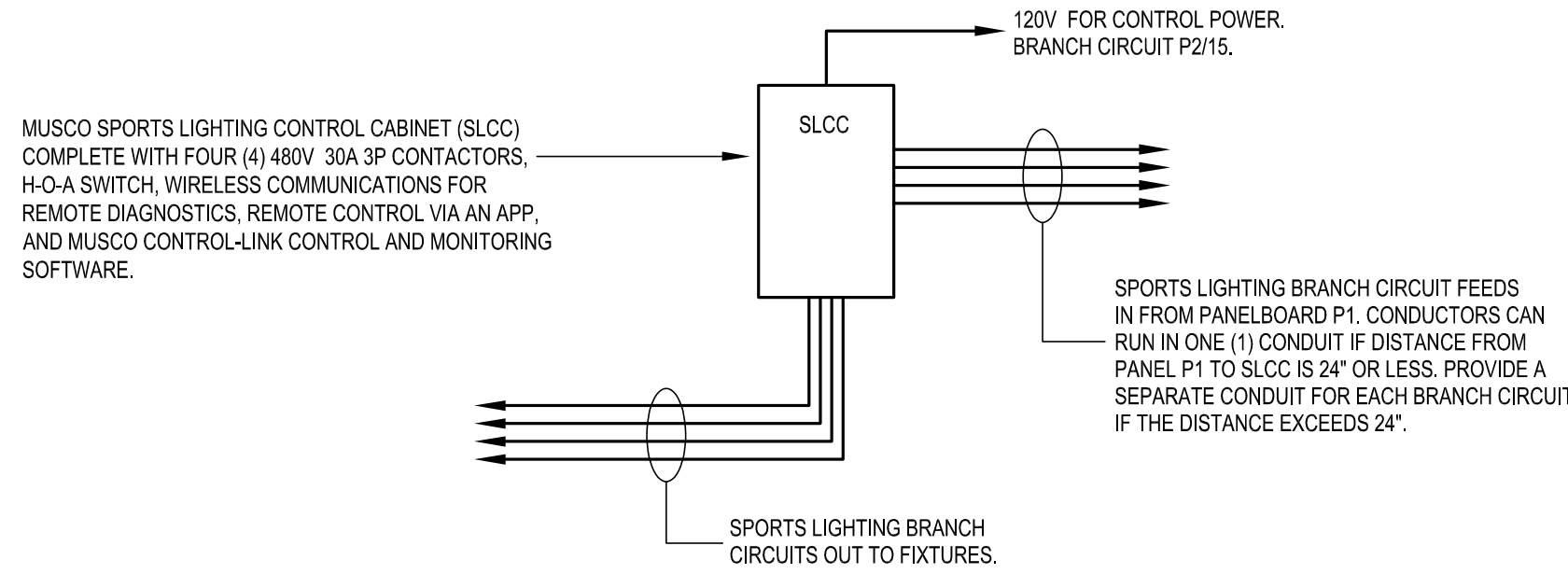
3.3 FIELD QUALITY CONTROL

- A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, Illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA LM-5-04.

1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 years. These levels will be specifically stated as "guaranteed" on the Illumination summary provided by the manufacturer.
2. The contractor/manufacturer shall be responsible for conducting initial light level testing and an additional inspection of the system, in the presence of the owner, one year from the date of commissioning of the lighting.
3. The contractor/manufacturer will be held responsible for any and all charges needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these reports.
3. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles, uniformity ratios, uplight for aerial visibility, and off-axis candela readings are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be required to make adjustments to meet specifications and safety Owner.

3.4 WARRANTY AND GUARANTEE

- A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years from the date of shipment. Warranty shall guarantee specified light levels. Manufacturer shall maintain specifically funded financial reserves to assure fulfillment of the warranty for the full term. Warranty does not cover weather conditions events such as lightning or hail damage, improper installation, vandalism or abuse, unauthorized repairs or alterations, or product made by other manufacturers.
- B. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and luminaire output for 25 years from the date of equipment alignment. Parts and labor shall be covered such that individual luminaire outages will be repaired when the usage of any field is materially impacted. Manufacturer is responsible for removal and replacement of failed luminaires, including all parts, labor, shipping, and equipment rental associated with maintenance. Owner agrees to check fuses in the event of a luminaire outage.



SPORTS LIGHTING CONTROL CABINET
NTS

SCHEDULE OF SPORTS LIGHTING LUMINAIRES

POLE DESIGNATION	POLE HEIGHT	LUMINAIRE TYPE	LUMINAIRE LUMENS	LUMINAIRE WATTS	LUMINAIRE QUANTITY	LUMINAIRE MOUNTING HEIGHT
SLP1	70'	MUSCO TLC-BT-575	52,000	575	2	16'
		MUSCO TLC-LED-1500	181,000	1410	7	70'
SLP2	70'	MUSCO TLC-BT-575	52,000	575	2	16'
		MUSCO TLC-LED-1500	181,000	1410	7	70'
SLP3	70'	MUSCO TLC-BT-575	52,000	575	2	16'
		MUSCO TLC-LED-1500	181,000	1410	7	70'
SLP4	70'	MUSCO TLC-BT-575	52,000	575	2	16'
		MUSCO TLC-LED-1500	181,000	1410	7	70'

TABLE 1: POLE ASSEMBLY			
POLE ID	POLE HEIGHT ft (m)	# OF LUMINAIRES	ASSEMBLED POLE WEIGHT ¹ lb (kg)
SLP1	70 (21.3)	9	2580 (1170)
SLP2	70 (21.3)	9	2580 (1170)
SLP3	70 (21.3)	9	2580 (1170)
SLP4	70 (21.3)	9	2580 (1170)

Pole Assembly Notes:

1. Steel pole should overlap concrete base and be seated tight with 1 1/2 ton come-alongs (contractor provided).
2. Align weldmarks on steel sections before assembling.
3. Assembled pole weight includes steel sections, crossarms, luminaires, and electrical components enclosures. If pole has stamped structural design then use pole weight (listed as vertical force) on stamped structural design document.
4. Section overlap must be pulled together until tight. Overlap measurement should be +/- 6 in (150 mm).
5. This document is not intended for use as an assembly instruction. See *Installation Instructions: Light-Structure System™* Lighting System for complete assembly procedure.

TABLE 2: FOUNDATION DETAILS					
POLE ID	CONCRETE BASE WEIGHT lb (kg)	G in (mm)	BURIAL INFORMATION ^{1,2}		LIGHTNING GROUND ³ TYPE SUPPLEMENTAL INSTRUCTION
			H ft (m)	CONCRETE BACKFILL ^{1,2} yd ³ (m ³)	
SLP1	3780 (1715)	30 (762)	14 (4.3)	1.6 (1.2)	NO INTEGRATED ⁴ N/A
SLP2	3780 (1715)	30 (762)	14 (4.3)	1.6 (1.2)	NO INTEGRATED ⁴ N/A
SLP3	3780 (1715)	30 (762)	14 (4.3)	1.6 (1.2)	NO INTEGRATED ⁴ N/A
SLP4	3780 (1715)	30 (762)	14 (4.3)	1.6 (1.2)	NO INTEGRATED ⁴ N/A

Foundation Notes:

1. Concrete backfill is calculated to 2 ft (0.6m) below grade (no overage included). Top 2 ft (0.6m) to be class 5 soil compacted to 95% density of surrounding undisturbed soil unless otherwise specified in stamped structural design.
2. Concrete backfill required 3000 lb/cy (20 MPa) minimum.
3. Foundation design per 2021 IBC, 120 mph, exposure category C, vibration STD (Risk Category II).
4. Assumes IBC class 5 soils.
5. Standard bases include integrated lightning protection. If bases are cut, supplemental lightning protection is required. Contact Musco for materials and instruction.
6. Lightning protection is a manufacturer installed concrete encased electrode and connector. Ground connection is made when concrete base is installed and footing is poured. No additional steps required.

SPORTS LIGHTING POLE ASSEMBLY AND FOUNDATION DETAILS
NTS

REVISIONS

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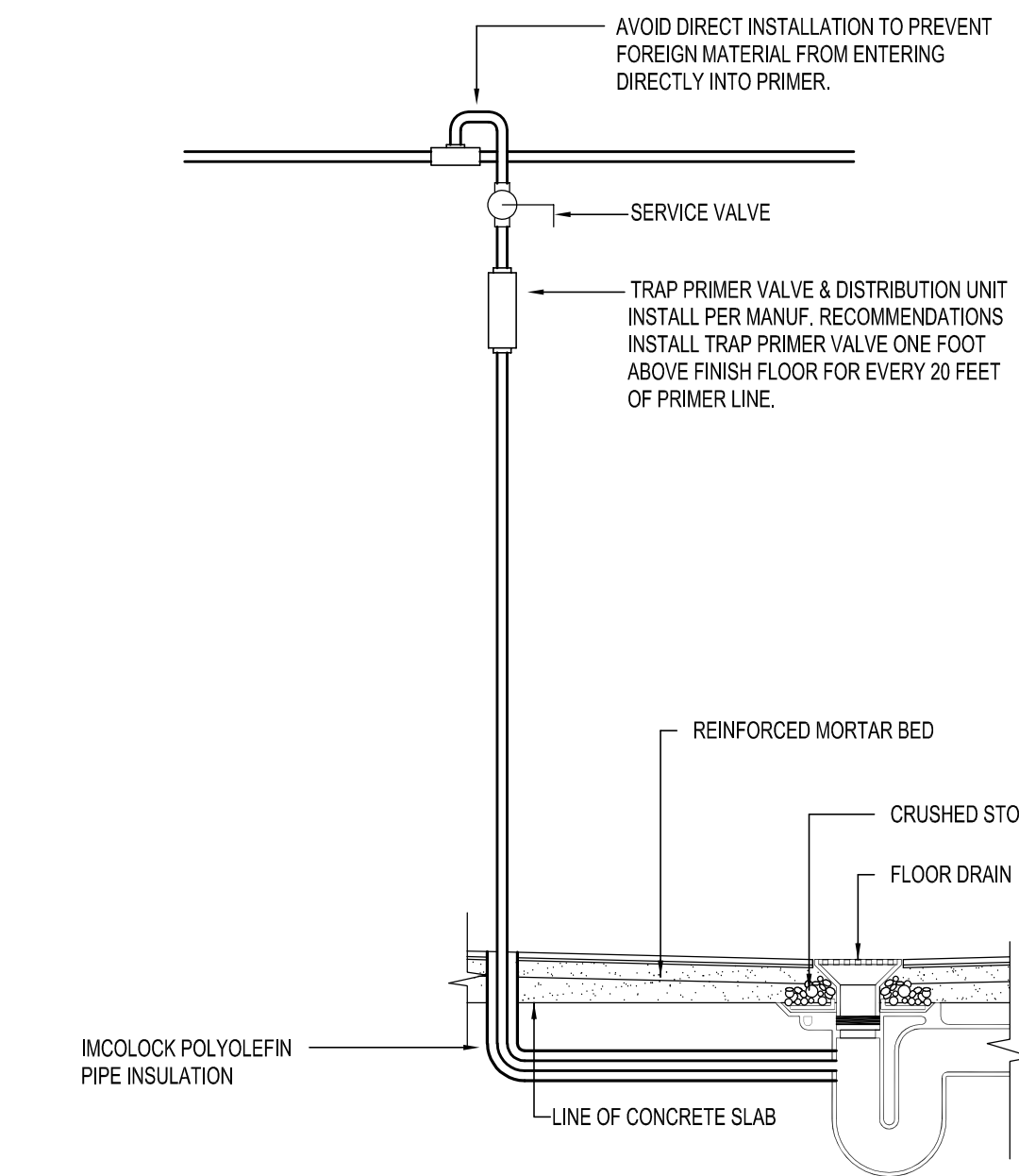
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TITLE
SPORTS LIGHTING
SPECIFICATIONS,
SCHEDULES, AND
POLE DETAILS

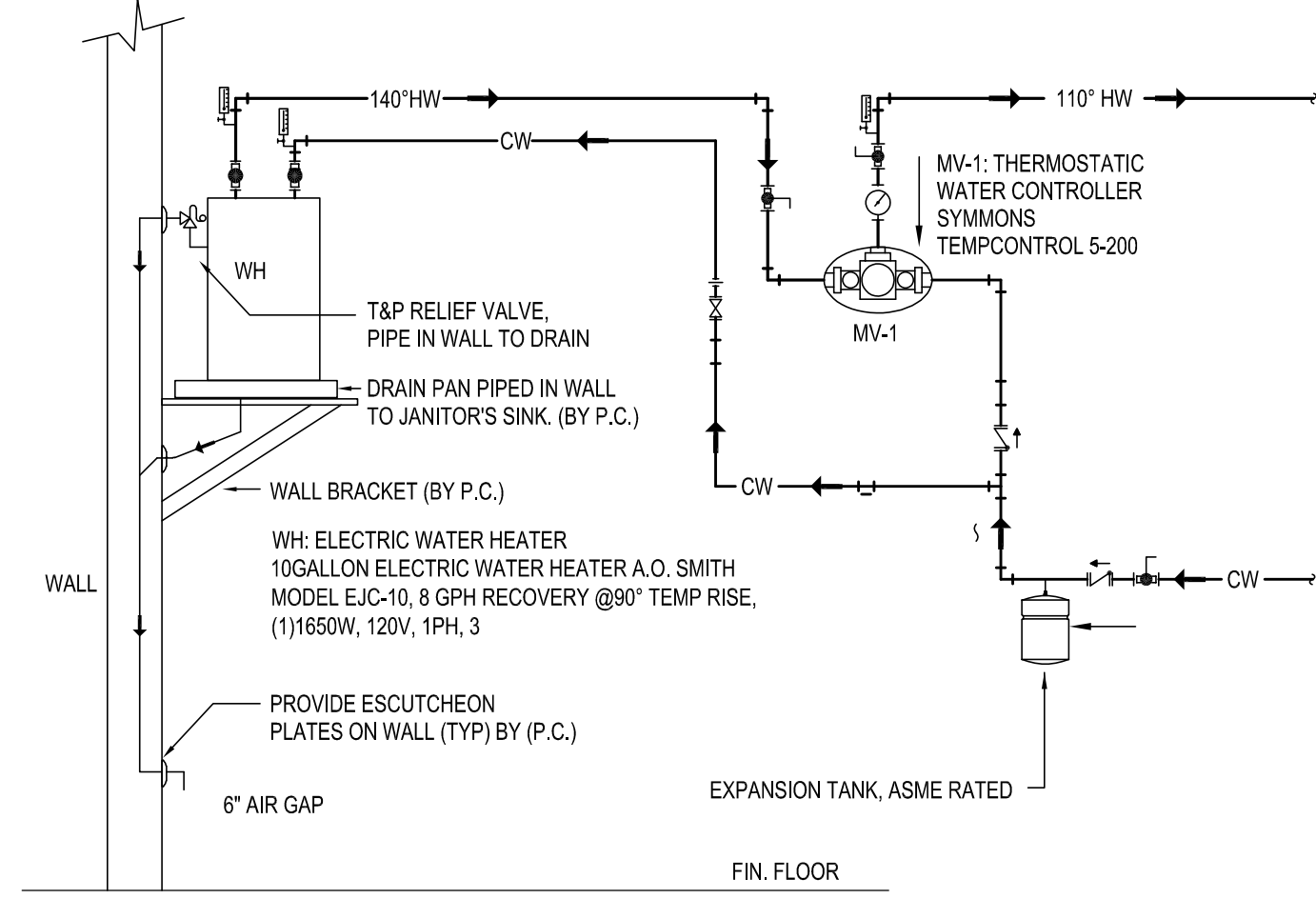
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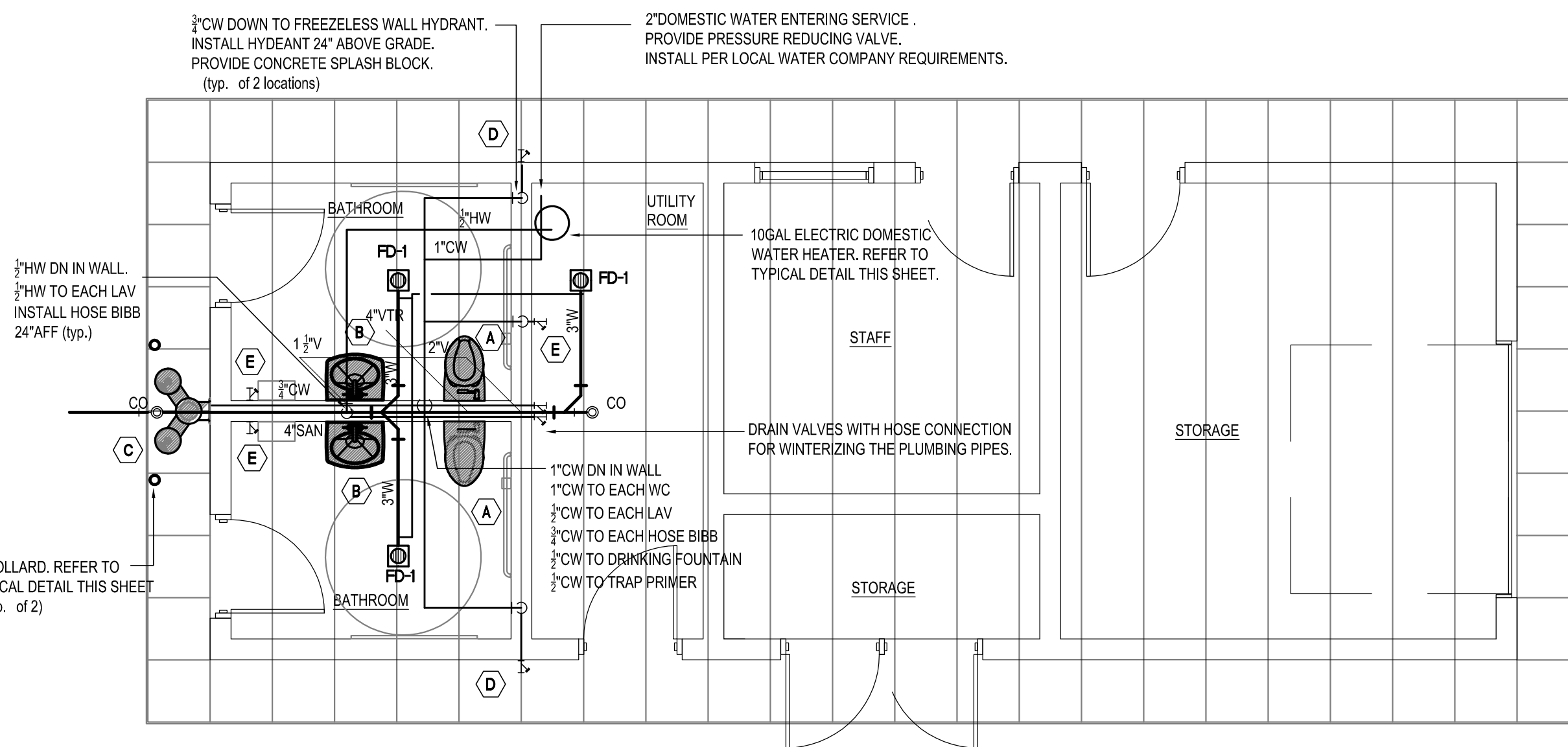


FLOOR DRAIN DETAIL - WITH TRAP PRIMER
NO SCALE



WATER HEATER w/PIPING INSTALLATION DETAIL
NO SCALE

PLUMBING SYMBOL LIST		
SYMBOL	ABBREV.	DESCRIPTION
	CW	COLD WATER
	HW	HOT WATER
	V	VENT
	SAN or W	SANITARY OR WASTE ABOVE SLAB/FLOOR
	SAN or W	SANITARY OR WASTE BELOW SLAB/FLOOR
		SHUT-OFF VALVE
		RISER DOWN
		RISER UP
		TEE DOWN
		PIPE CAP
		PITCH DOWN IN DIRECTION OF ARROW
		FLOW IN DIRECTION OF ARROW
	FD	FLOOR DRAIN WITH P-TRAP
	CO	FLOOR CLEAN OUT
	WCO	WALL CLEAN OUT



UTILITY BUILDING FLOOR PLAN - PLUMBING
1/4" = 1'-0"

GENERAL NOTES :

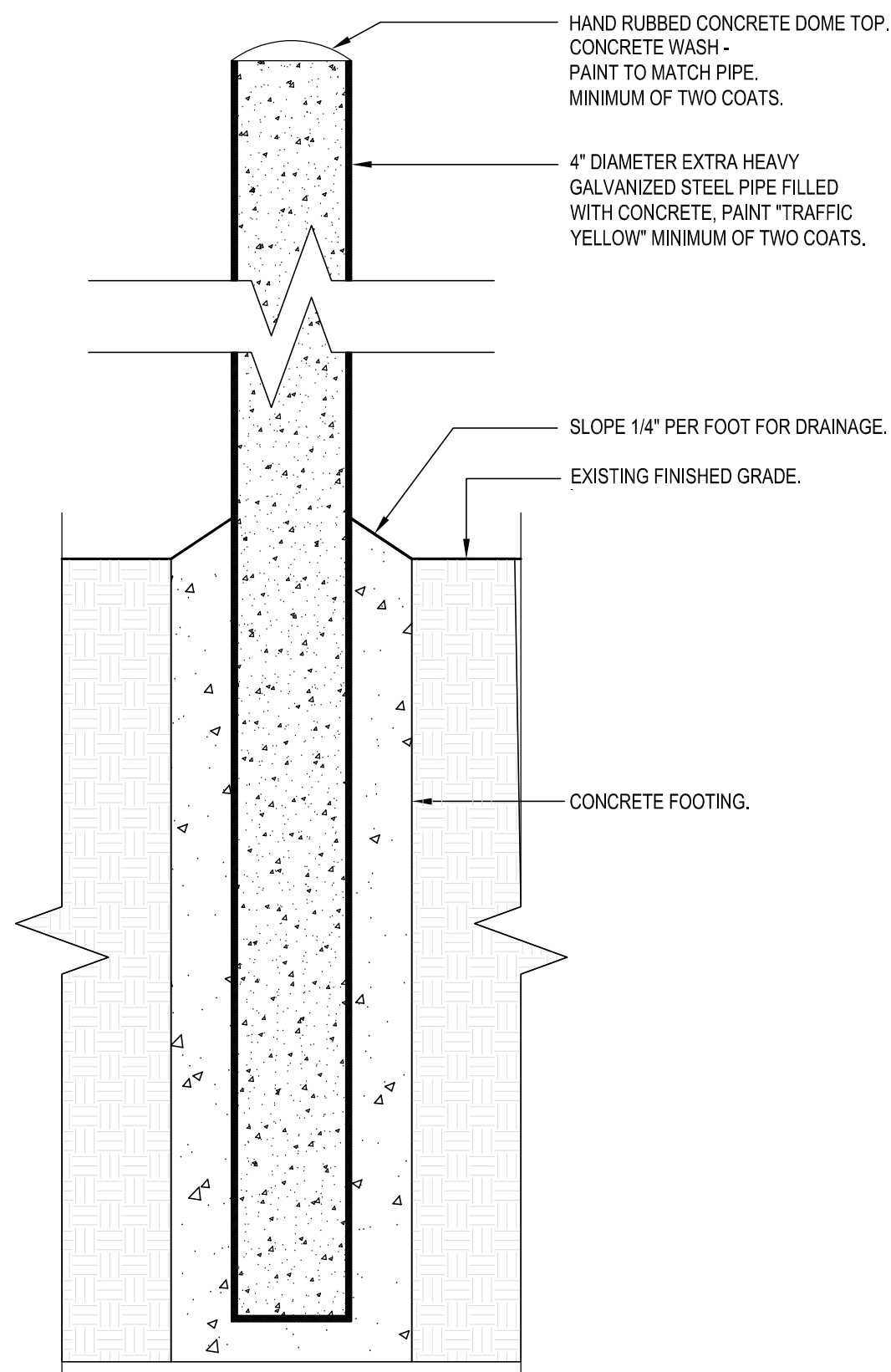
- DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK. ALL CONTRACTORS MUST COORDINATE WITH OTHER TRADES OTHER TRADES BEFORE PROCEEDING WITH ANY WORK.
- THE CONTRACTOR SHALL COORDINATE THE ROUTING AND INSTALLATION OF PLUMBING SYSTEMS TO AVOID CONFLICTS.
- THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH CONDITIONS PRIOR TO SUBMITTING HIS BID.
- INSTALL ALL HANDICAP ACCESSIBLE FIXTURES IN ACCORDANCE WITH ADA, UFAS AND ANSI REQUIREMENTS.
- ALL WASTE PIPE 3" AND LARGER SHALL HAVE A PITCH OF 1/8" PER FT.
- ALL UNDER SLAB DRAINAGE PIPING SHALL BE IN PVC.
- MINIMUM SIZE FOR ALL UNDER SLAB DRAINAGE PIPING SHALL BE 3 INCH.
- PROVIDE ESCUTCHEON PLATE @ ALL WALL/CEILING PENETRATIONS.
- THIS CONTRACTOR SHALL PROVIDE CLEANOUTS WITH COVER (ACCESS DOORS) ON WASTE STACKS @ CHANGE OF DIRECTION AND SLAB PENETRATIONS.
- THERE SHALL BE NO EXPOSED PIPING. PIPES SHALL RUN CONCEALED ABOVE THE CEILING OR IN WALLS. WHERE NOT POSSIBLE, THE GENERAL CONTRACTOR SHALL PROVIDE PIPE CHASES. ON EXTERIOR WALLS, PIPES SHALL RUN ON THE WARM SIDE OF THE INSULATION AND HAVE 2" OF INSULATION. PROVIDE PVC COVER FOR INSULATED PIPES.

FLOOR DRAIN SCHEDULE						
UNIT No.	MANUF.	MODEL	SIZE (OUTLET/ STRAINER)	LOCATION	TRAP PRIMER	REMARKS
FD-1	JAY R SMITH	2005Y BAJ-MB-13	3"Ø	TOILET RM.	PSSD	1,3
CO	JAY R SMITH	4023				2,3
WCO	JAY R SMITH	4422				4

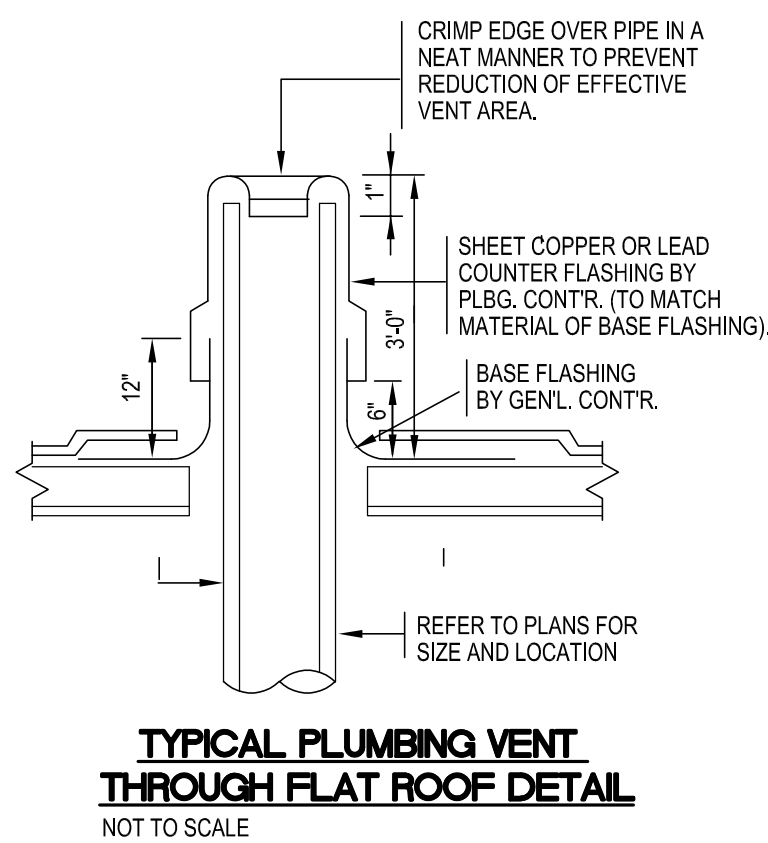
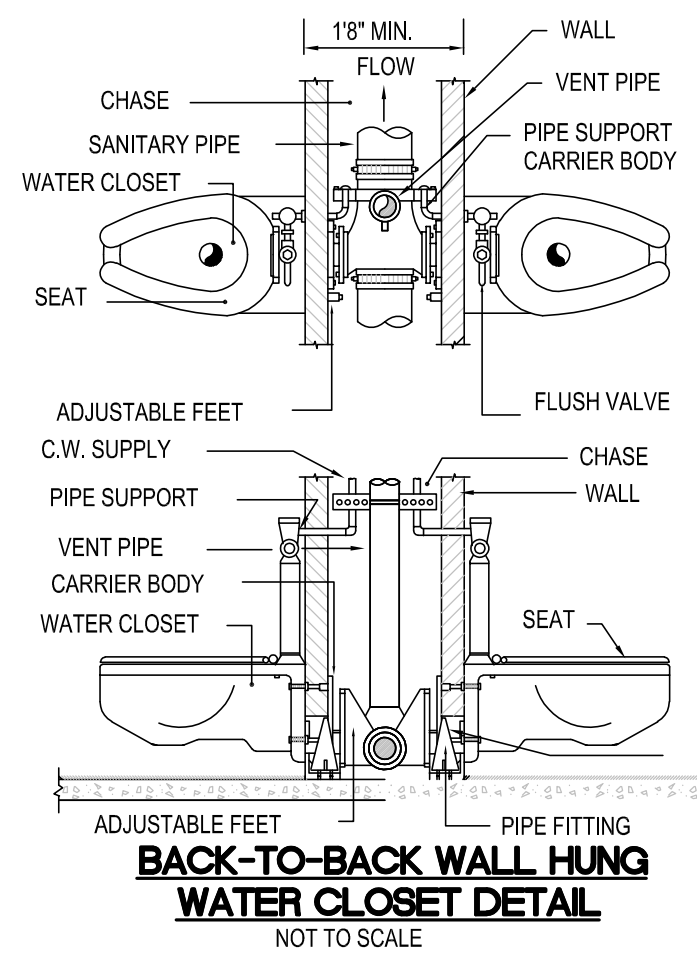
REMARKS:

- FLOOR DRAINS SHALL HAVE DUCO CAST IRON BODY W/NO-HUB OUTLET, DEEP SEAL TRAP SEDIMENT BUCKET, NICKEL BRONZE STRAINER, VANDAL PROOF SCREWS TRAP PRIMER CONNECTION
- FLOOR CLEANOUT WITH BRONZE TAPER THREAD PLUG, ADJUSTABLE NICKEL BRONZE TOP.
- FLOOR DRAINS AND CLEANOUTS TO MATCH FINISHED FLOOR USAGE AND FINISH SURFACE.
- WALL CLEANOUT WITH STAINLESS STEEL COVER

PLUMBING FIXTURE SCHEDULE- UNITS								
FIXTURE TYPE	DESCRIPTION	MANUF.	MODEL	CONNECTION				REMARKS
				CW	HW	W/SAN	V	
A	WATER CLOSET (ACCESSIBLE)	KOHLER	KINGSTON ULTRA K-84325	1"	-	4"	2"	1,2
	FLUSH VALVE (ACCESSIBLE)	SLOAN	WES-111-1,6/1,1					
B	LAVATORY (ACCESSIBLE)	KOHLER	PINOK K-2035-1	1/2"	1/2"	1 1/2"	1 1/4"	1,3,4
	FAUCET	CHICAGO	3502-4E2805ABCP					
C	DRINKING FOUNTAIN (ACCESSIBLE)	ELKAY	LK4409BF	1/2"	-	1 1/2"	1 1/4"	1,2
D	FREEZELESS WALL HYDRANT	WOODFORD	65	3/4"	-	-	-	-
E	HOSE BIBB	WOODFORD	B26	3/4"	-	-	-	-
REMARKS:								
1. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE MOUNTING HEIGHT.								
2. TOILET SEAT SHALL BE MODEL K-4731 BY KOHLER								
3. PROVIDE RUBRO PIPE INSULATION FOR ALL ACCESSIBLE LAVATORIES AND SINKS.								
4. SINGLE FAUCET HOLE								
5. PROVIDE WITH QUICK CONNECT HAND HELD SHOWER								
6. PROVIDE MODEL 830 AA FAUCET, HOSE AND HOSE BRACKET, MOP HANGER, 3"QUICK DRAIN CONNECTOR, VINYL BUMPER GUARD, STAINLESS STEEL WALL GUARD. PROVIDE AIR ADMITTANCE VALVE BY STUDORVENT.								
7. PROVIDE STAINLESS STEEL TOP ENCLOSURE COVER TO MATCH SHOWER SYSTEM								



PROTECTIVE BOLLARD DETAIL
SCALE NTS.



EXHAUST FAN SCHEDULE													
UNIT No.	AREA SERVED	TYPE	MANUF.	MODEL	CFM	SP	RPM	Max.Watts/ BHP	PH	VOLTS	SONES	SPEED	REMARKS
EF-1	TOILET ROOMS	CENTRIFUGAL INLINE EXHAUST FAN	COOK	GN 220	100	0.125	1050	40	1	115	1.5	CONSTANT	1,2,3,4,5

- REMARKS:
- POWER WIRING AND RACEWAY BY DIVISION 26
 - DISCONNECTS AND STARTING RELAYS (S) FURNISHED BY DIVISION 23
 - SEISMICALLY SUPPORT AS NEEDED
 - FAN SHALL BE ON WHEN ANY OF THE LIGHT SWITCHES IN ANY OF THE TOILET ROOMS IS ON.

DIFFUSER and REGISTER SCHEDULE	
TYPE	DESCRIPTION
TYPE A	TITUS CEILING/WALL MOUNTED RETURN/EXHAUST REGISTER MODEL 355FL 1/2"SPACING, 35 DEG. FIXED DEFLECTION. PROVIDE IN ALUMINUM CONSTRUCTION. REFER TO DRAWINGS FOR LOCATION AND SIZES. COLOR BY ARCHITECT.

GENERAL NOTE:
SHEET METAL CONTRACTOR SHALL PROVIDE VOLUME DAMPER IN ALL BRANCHES TO DIFFUSERS AND REGISTERS FOR PROPER SYSTEM BALANCE.

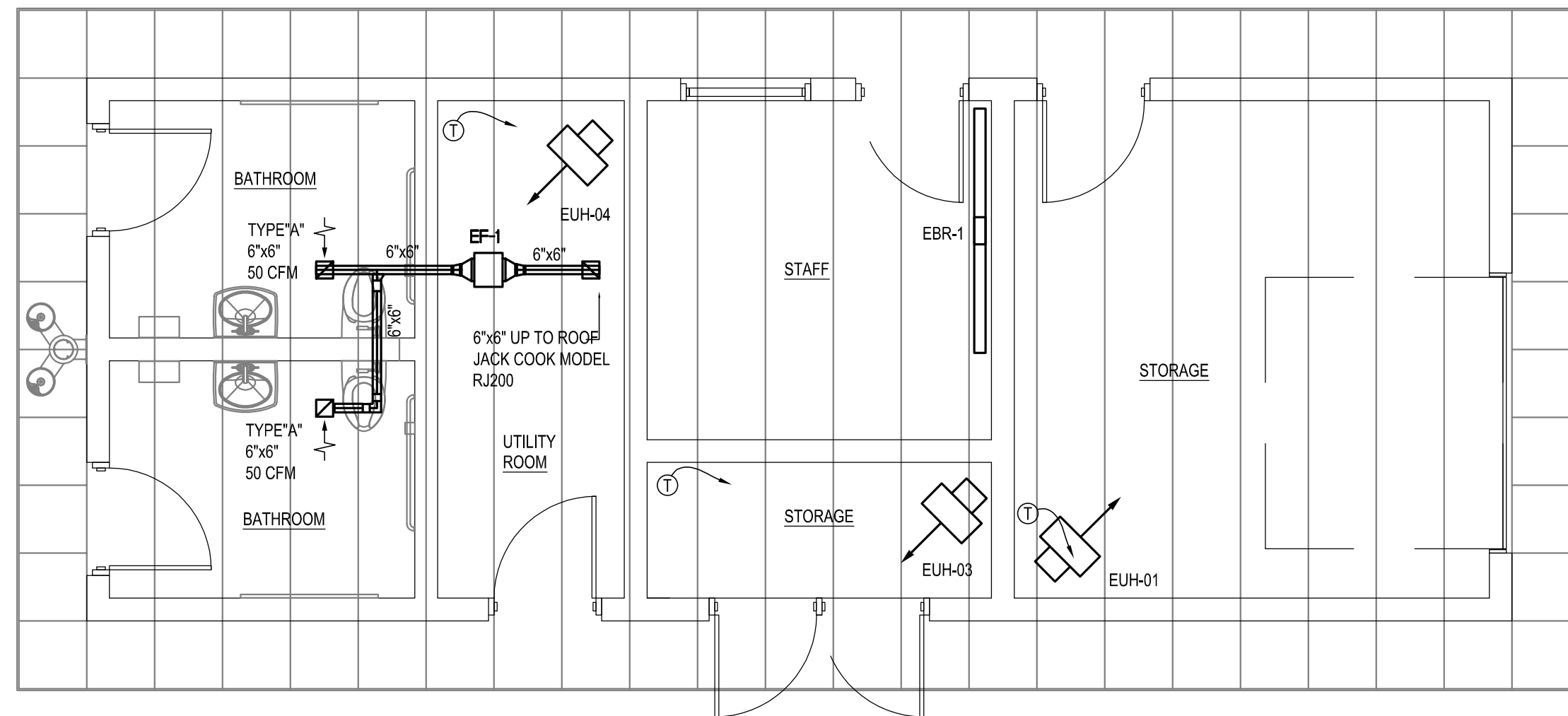
ELECTRIC BASEBOARD RADIATION SCHEDULE									
MARK	AREA SERVED	MANUF.	MODEL	MBH	CAPACITY (KW)	AMPS	PH	VOLT	REMARKS
EBR-1	STAFF	BERKO	BKOC2516W	5.2	1.5	12.6	1	120	REFER TO NOTES

- NOTES:
- MANUFACTURER TO PROVIDE WALL MOUNTED THERMOSTAT.
 - POWER WIRING AND RACEWAY BY DIVISION 26. DISCONNECT AND STARTING RELAY BY DIVISION 23
 - INSTALL IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

ELECTRIC UNIT HEATER SCHEDULE										
MARK	AREA SERVED	MANUF.	MODEL	CFM	CAPACITY (KW)	ΔT (°F)	AMPS	PH	VOLT	REMARKS
EUH-01	OUTDOOR STORAGE	BERKO	HUHA320	350	3.0	27	14.5	1	208	REFER TO NOTES
EUH-02	STORAGE 32	BERKO	HUHA320	350	3.0	27	14.5	1	208	REFER TO NOTES
EUH-03	UTILITY ROOM	BERKO	HUHA320	350	3.0	27	14.5	1	208	REFER TO NOTES

- NOTES:
- TOTALLY ENCLOSED FAN MOTOR WITH THERMAL OVERLOAD
 - COLOR BY ARCHITECT
 - MANUFACTURER TO PROVIDE WALL MOUNTED THERMOSTAT.
 - POWER WIRING AND RACEWAY BY DIVISION 26. DISCONNECT AND STARTING RELAY BY DIVISION 23
 - INSTALL IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
 - MANUFACTURER SHALL PROVIDE CEILING BRACKETS.

MECHANICAL - DUCTWORK - GENERAL NOTES:	
1.	ALL DUCT CONNECTIONS TO EQUIPMENT SHALL BE FLEX CONNECTION TYPE.
2.	INSTALL UNITS WITH CLEARANCE FOR SERVICE.
3.	PROVIDE LOW LEAK VOLUME DAMPERS WITH LOCKING QUADRANTS AT ALL TAKEOFFS AND TO EACH EXHAUST AIR DIFFUSER. EACH DAMPERS IN DUCTS 12" AND MORE SHALL BE OPPOSED BLADE TYPE.
4.	SHOWN DUCT SIZES ARE CLEAR INSIDE DIMENSION, UNLESS OTHERWISE NOTED.
5.	not used
6.	DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK. NOT EXACT EQUIPMENT LOCATION. ALL CONTRACTORS MUST COORDINATE EQUIPMENT LOCATIONS WITH OTHER TRADES BEFORE WORK BEGINS. DUCT PENETRATIONS AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH ARCHITECTURAL AND STRUCTURAL PLANS.
7.	THE EXHAUST AIR SYSTEMS SHALL BE PURGED TO ENSURE ALL FOREIGN PARTICLES ARE REMOVED PRIOR TO THE FINAL CONNECTION TO AIR TERMINAL DEVICES. PROVIDE REPORT FOR THE RECORD.
8.	THE LOCATION OF ALL DIFFUSERS, REGISTERS AND GRILLES SHALL BE COORDINATED WITH THE ARCHITECTURAL REFLECTED CEILING PLANS.
9.	ALL DUCTWORK ELBOWS ARE TO BE FULL RADIUS OR SQUARED WITH DOUBLE THICKNESS TURNING VANES.
10.	ALL SUSPENDED EQUIPMENT SHALL BE LOCATED 24" MAX. ABOVE CEILING, TO ALLOW EASY ACCESS.
11.	REFER TO SPECIFICATION FOR THROUGH PENETRATION FIRE STOP SYSTEMS FOR SEALING PENETRATIONS THROUGH FIRE RATED CONSTRUCTION REQUIREMENTS
12.	ALL TOILET ROOMS AND STORAGE ROOMS SHALL HAVE 3/4" UNDERCUT DOORS.



UTILITY BUILDING FLOOR PLAN - HVAC
1/4" = 1'-0"

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PERFORMANCE SPECIFICATION - PLUMBING

PART 1 - GENERAL REQUIREMENTS

1.01 SCOPE OF WORK

WORK UNDER THIS SECTION SHALL INCLUDE ALL LABOR, MATERIALS, SERVICES, EQUIPMENT, TRANSPORTATION AS NECESSARY TO FURNISH AND INSTALL ALL PLUMBING WORK INCLUDING:

- INTERIOR SOIL, WASTE AND VENT SYSTEM TO 5 FEET BEYOND BUILDING.
- INTERIOR DOMESTIC WATER SYSTEMS, CONNECTING TO SERVICE AT BUILDING WALL.
- PLUMBING FIXTURES AND TRIM.
- PIPING INSULATION.
- FLUSHING, STERILIZATION AND TESTS.

FURNISH PANELS TO BE INSTALLED BY THE TRADE IN WHOSE SURFACE THEY OCCUR AND ROOF DRAINS TO BE INSTALLED BY ROOFER.

THE FOLLOWING WORK IS TO BE PERFORMED UNDER OTHER SECTIONS.

- EXCAVATION, BACKFILL, PUMPING, SHORING AND MANHOLES.
- TEMPORARY WATER.
- FLASHING FOR PLUMBING VENTS THROUGH ROOF.
- ELECTRIC WIRING, DISCONNECT SWITCHES, MOUNTING OF CONTROLLERS FOR ALL EQUIPMENT ARE INCLUDED UNDER SECTION 16000
- ELECTRICAL.
- EXTERIOR SANITARY, STORM DRAINAGE AND WATER.

1.02 STANDARDS

THE PLUMBING SUBCONTRACTOR SHALL BE DONE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF STATE PLUMBING CODE AND ALL OTHER STATE AND LOCAL CODES AND/OR AUTHORITIES HAVING JURISDICTION AND AMENDMENTS THERETO.

GAS WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE FUEL AND GAS CODE AND AMENDMENTS THERETO.

1.03 PERMITS AND FEES

THIS SUBCONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED TESTS, PERMITS, CERTIFICATES, NOTIFICATIONS, INSPECTIONS AND LICENSES NECESSARY FOR ALL INCIDENTAL TO THE ACCOMPLISHMENT OF HIS WORK AND THE USE OF SUCH WORK WHEN COMPLETED.

1.04 SHOP DRAWINGS

SUBMIT SHOP DRAWINGS AND/OR MANUFACTURER'S LITERATURE OF ALL MATERIALS AND EQUIPMENT UNDER THIS SECTION FOR APPROVAL. NO WORK SHALL COMMENCE UNTIL SHOP DRAWINGS HAVE BEEN STAMPED WITH AN APPROVAL BY THE ARCHITECT.

1.05 COORDINATION

FURNISH ALL SLEEVES, FRAMES, BOXES, TEMPLATES, AND SUPPORTS SO THAT THE GENERAL CONTRACTOR MAY BUILD SAME IN PLACE.

CONFER WITH ALL OTHER SUBCONTRACTORS AS TO THE LOCATION OF THEIR WORK BEFORE BEGINNING PLUMBING WORK AND INSTALL PLUMBING WORK IN SUCH A MANNER AS TO AVOID INTERFERENCE WITH THE OTHER TRADES. OBTAIN FROM THESE SUBCONTRACTORS THE NECESSARY INFORMATION RELATIVE TO PLUMBING WORK REQUIRED FOR EQUIPMENT INSTALLED BY THEM.

CUTTING AND PATCHING REQUIRED FOR OPENINGS THROUGH THE STRUCTURE FOR PLUMBING WORK SHALL BE DONE BY THE GENERAL CONTRACTOR AT THE EXPENSE OF THIS SUBCONTRACTOR, IF THE LATTER FAILS TO GIVE PROPER INFORMATION FOR THESE OPENINGS AT THE TIME OF CONSTRUCTION FOR THESE AREAS.

PLUMBING SUBCONTRACTOR SHALL BE RESPONSIBLE TO CHECK WITH THE OWNER AND THE ARCHITECT FOR FINAL DIMENSIONS ON EQUIPMENT OR FIXTURES FURNISHED BY VARIOUS EQUIPMENT CONTRACTORS AND IN ALL ROOMS WHERE SAID FIXTURES OR EQUIPMENT ARE. DRAWINGS MUST BE FURNISHED BY RESPECTIVE VENDOR OR OWNER BEFORE ANY FLOOR OR WALL IS SLEEVED, OR PLUMBING PIPING INSTALLED, SAID DRAWINGS TO BE FIRST APPROVED BY THE ARCHITECT.

THE PLUMBING SUBCONTRACTOR SHALL BE HELD RESPONSIBLE FOR AND SHALL PAY FOR ALL DAMAGES TO OTHER WORK CAUSED BY THIS WORK OR WORKMEN.

1.06 PROTECTION

MATERIALS, FIXTURES, AND FITTINGS SHALL BE PROPERLY PROTECTED, AND ALL PIPE OPENINGS SHALL BE TEMPORARILY CLOSED SO AS TO PREVENT OBSTRUCTION AND DAMAGE. WATER CLOSETS, LAVATOIRES, AND URINALS SHALL BE BOARDED OVER, AND ALL OTHER FIXTURES PROTECTED WITH PASTED-ON PAPER. POST NOTICE PROHIBITING THE USE OF THE FIXTURES PRIOR TO COMPLETION. TAKE PRECAUTION TO PROTECT ALL MATERIAL FROM DAMAGE AND THEFT.

1.07 VALVE TAGS, NAMEPLATES AND CHARTS

ALL VALVES ON PIPES OF EVERY DESCRIPTION SHALL HAVE NEAT CIRCULAR BRASS VALVE TAGS ON AT LEAST 1 1/2" DIAMETER, ATTACHED WITH BRASS HOOK TO EACH VALVE STEM. STAMP ON THESE VALVE TAGS IN LETTERS AS LARGE AS PRACTICAL, THE NUMBER OF THE VALVE AND THE SERVICE, SUCH AS "H/W" AND "C/W," FOR HOT AND COLD WATER RESPECTIVELY. THE NUMBERS FOR EACH SERVICE SHALL BE CONSECUTIVE.

ALL VALVES ON TANKS AND PUMPS SHALL BE NUMBERED BY 3" RED METAL DISCS WITH WHITE NUMBERS 2" HIGH, SECURED TO STEM OF VALVES BY MEANS OF BRASS HOOKS OR SMALL SOLID LINK BRASS CHAIN.

THESE NUMBERS SHALL CORRESPOND TO NUMBERS INDICATED FOR VALVES ON THE RECORD DRAWINGS AND ON TWO PRINTED DETAILED LISTS. THESE PRINTED LISTS SHALL STATE THE NUMBERS AND LOCATIONS OF EACH VALVE AND THE FIXTURE OR GROUP OF FIXTURES WHICH IT CONTROLS AND OTHER NECESSARY INFORMATION, SUCH AS REQUIRING THE OPENING OR CLOSING OF ANOTHER VALVE OR VALVES WHEN ANY ONE VALVE IS TO BE OPENED OR CLOSED.

THESE PRINTED LISTS SHALL BE PREPARED IN A FORM TO MEET THE APPROVAL OF THE ARCHITECT, AND SHALL BE FRAMED UNDER GLASS.

NAMEPLATES, CATALOG NUMBERS, AND RATING IDENTIFICATIONS SHALL BE SECURELY ATTACHED TO ELECTRICAL AND MECHANICAL EQUIPMENT.

1.08 OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS

AT THE COMPLETION OF THE PROJECT TURN OVER TO THE ENGINEER FOUR COMPLETE MANUALS CONTAINING THE FOLLOWING:

- COMPLETE SHOP DRAWINGS OF ALL EQUIPMENT.
- OPERATING DESCRIPTION OF ALL SYSTEMS.
- NAMES, ADDRESSES AND TELEPHONE NUMBERS OF ALL SUPPLIERS OF THE SYSTEM AND SERVICE AGENTS.
- PREVENTIVE MAINTENANCE INSTRUCTIONS FOR ALL SYSTEMS.

1.09 STERILIZATION OF WATER SYSTEM

STERILIZE THE ENTIRE INTERIOR AND EXTERIOR WATER PIPING SYSTEMS WITH CHLORINE BEFORE ACCEPTANCE FOR DOMESTIC OPERATION.

THE AMOUNT OF CHLORINE APPLIED SHALL BE SUCH AS TO PROVIDE A DOSEAGE OF NOT LESS THAN 50 PARTS PER MILLION. THE CHLORINATING MATERIALS SHALL BE EITHER LIQUID CHLORINE OR SODIUM HYPOCHLORITE SOLUTION, AND SHALL BE INTRODUCED INTO THE SYSTEM AND DRAWN TO ALL POINTS OF

THE SYSTEM. IF POSSIBLE TO DO SO, THE LINES SHALL BE THOROUGHLY FLUSHED BEFORE INTRODUCTION OF THE CHLORINATING MATERIALS. AFTER A CONTACT PERIOD OF NO FEWER THAN EIGHT (8) HOURS, THE SYSTEM SHALL BE FLUSHED WITH CLEAN WATER UNTIL THE RESIDUAL CHLORINE CONTENT IS NOT GREATER THAN 0.2 PARTS PER MILLION. ALL VALVES IN THE LINES BEING STERILIZED SHALL BE OPENED AND CLOSED SEVERAL TIMES DURING THE CONTACT PERIOD.

1.10 CLEANING AND ADJUSTING

AT THE COMPLETION OF THE WORK, ALL PARTS OF THE INSTALLATION SHALL BE THOROUGHLY CLEANED. ALL EQUIPMENT, PIPE, VALVES, AND FITTINGS SHALL BE CLEANED OF GREASE AND METAL CUTTINGS AND SLUDGE WHICH MAY HAVE ACCUMULATED BY OPERATION OF THE SYSTEM FOR TESTING.

1.11 TESTS

THE PLUMBING SUBCONTRACTOR SHALL NOTIFY THE ENGINEER AND THE PROPER ADMINISTRATIVE OR UTILITY AUTHORITIES HAVING JURISDICTION OVER THE PLUMBING WORK THREE (3) WORKING DAYS BEFORE THE TESTS ARE TO BE MADE. CONCEALED WORK SHALL REMAIN UNCOVERED UNTIL REQUIRED TESTS ARE PROVIDED. REPAIRS OR DEFECTS THAT ARE DISCOVERED AS A RESULT OF INSPECTION OF TESTS SHALL BE MADE WITH NEW MATERIALS. CAULKING OF SCREWED JOINTS, CRACKS, OR HOLES WILL NOT BE ACCEPTED. TESTS SHALL BE REPEATED AFTER DEFECTS HAVE BEEN ELIMINATED. ALL TESTING INSTRUMENTS, GAUGES, PUMPS, AND OTHER EQUIPMENT REQUIRED OR NECESSARY FOR TESTS SHALL BE PROVIDED BY THE PLUMBING SUBCONTRACTOR. THE ENGINEER AND PROPER ADMINISTRATIVE AUTHORITIES SHALL BE REPRESENTED AT ALL TESTS.

DRAINAGE SYSTEMS TESTS: APPLY A WATER TEST TO ALL PARTS OF THE INTERIOR AND EXTERIOR DRAINAGE SYSTEMS BEFORE PIPES ARE CONCEALED OR FIXTURES SET IN PLACE. THE TEST MAY BE APPLIED IN SECTIONS. CLOSE ALL OPENINGS OF EACH SYSTEM TO BE TESTED, EXCEPT THE HIGHEST OPENING ABOVE THE ROOF, AND FILL THE ENTIRE SYSTEM WITH WATER TO THE OVERFLOW POINT OF THE HIGHEST OPENING. ALL PARTS OF THE SYSTEM SHALL BE SUBJECT TO NOT LESS THAN 10 FEET OF HYDROSTATIC HEAD, EXCEPT THE UPPERMOST 10 FEET OF THE PIPING DIRECTLY BELOW THE OPENING. THE WATER SHALL REMAIN IN THE SYSTEM FOR NOT LESS THAN 30 MINUTES, AFTER WHICH TIME NO LEAKS AT ANY JOINT OR LOWERING OF THE WATER LEVEL AT THE OVERFLOW SHALL BE VISIBLE.

DOMESTIC WATER SUPPLY SYSTEM TESTS: WATER PRESSURE TEST SHALL BE APPLIED TO WATER SUPPLY SYSTEM BEFORE PIPING IS CONCEALED OR BEFORE FIXTURES ARE CONNECTED. HYDROSTATIC PRESSURE OF NOT LESS THAN 150 LBS PER SQUARE INCH SHALL BE APPLIED TO INTERIOR PIPING. THERE SHALL BE NO LEAKS IN SYSTEM AT THESE PRESSURES FOR A PERIOD OF TWO (2) HOURS.

1.12 GUARANTEE

THE PLUMBING SUBCONTRACTOR SHALL GIVE THE OWNER A WRITTEN GUARANTEE TO MAKE GOOD ANY AND ALL FAULTS AND DEFECTS IN THE PLUMBING SYSTEM DUE TO DEFECTIVE OR IMPROPER MATERIALS OR WORKMANSHIP THAT MAY APPEAR WITHIN 18 MONTHS FROM THE DATE OF FINAL ACCEPTANCE OF THE BUILDING AND SHALL MAKE ALL CHANGES WITHIN THE GUARANTEE PERIOD WHICH ARE REQUIRED TO PUT THE SYSTEM IN PROPER CONDITION AND OPERATION WITHOUT COST TO THE OWNER.

PART 2 - PRODUCTS

2.01 PIPING, VALVES, FLOOR DRAINS, HYDRANTS

CAST IRON DRAINAGE PIPING AND FITTINGS (NEW SOIL, WASTE, VENT):

- SERVICE WEIGHT HUB AND SPIGOT PATTERN CAST IRON SOIL, PIPE AND FITTINGS CONFORMING TO ASTM A-74 AND ANSI A-122.5 WITH LEAD JOINTS, OR RUBBER GASKETS FOR BURIED INSTALLATIONS. ABOVE GROUND PIPING MAY BE HUBLESS SERVICED EIGHT CAST IRON WITH CODE APPROVED CLAMPS. PVC ACCEPTABLE WITH SPECIFIC APPROVAL.

- JOINTS FOR CAST IRON SOIL PIPE AND FITTINGS WITH HUBS AND BEADED SPIGOTS AS SPECIFIED ABOVE SHALL BE MADE WITH CAULKED LEAD AND OAKUM, OR WITH STAINLESS STEEL NO HUB APPROVED JOINTS.

- SCREWED FITTINGS: ANSI B16.12.
- PIPING AND FITTINGS SHALL BE COATED INSIDE AND OUTSIDE AT FACTORY, CONFORMING TO COMMERCIAL STANDARDS CS-188.

COPPER DRAINAGE PIPE AND FITTINGS (NEW WASTES AND VENTS 2" AND SMALLER, ABOVE GROUND):

- TYPE M COPPER TUBING: ASTM B-88.
- CAST BRASS SOLDER JOINT FITTINGS: ANSI B16.23.

COPPER TUBING AND FITTINGS (DOMESTIC WATER):

- TYPE L HARD DRAWN OR ANNEALED: ASTM B-88 FOR ABOVE GROUND.
- TYPE K SOFT ANNEALED: ASTM B-88 FOR BURIED INSTALLATIONS.
- WROUGHT SOLDER FITTINGS: ANSI B16.22.

UNIONS:

- GROUND JOINT TYPE, BRASS FOR COPPER TUBING; MALLEABLE IRON, WITH BRONZE SEATS FOR IRON PIPE.

- PIPE NIPPLES:
- PIPE NIPPLES SHALL BE OF THE CORRESPONDING QUALITY AS PIPE ON WHICH THEY ARE USED.

- CLOSE AND SHORT SPACE NIPPLES SHALL BE EXTRA-HEAVY, STANDARD WEIGHT CLOSE OR SHOULDER NIPPLES ARE NOT PERMITTED.

JOINTING COMPOUNDS:

- THREADED AND FLANGED JOINTING COMPOUND SHALL BE MADE UP OF PIPE CEMENT AND OIL, OR GRAPHITE AND OIL.
- FIXTURE SETTING COMPOUND SHALL CONFORM TO FEDERAL SPECIFICATION HH-C-336.
- SOLDERED JOINTS SHALL BE MADE WITH NEW LEAD FREE BRIGHT FLUX SHALL BE NON-CORROSIVE TYPE.

VALVES AND GAUGES:

PRESSURE GAUGES: 1/2" SIZE WITH CAST ALUMINUM CASES, PHOSPHOR BRONZE BUDED MOVEMENT AND BOURDON TUBES, WHILE DIAL FACES AND BLACK LETTERING, FORGED BRASS SOCKETS, AND RANGE OF 0 TO 150 PSI, EQUAL TO TERRICE #800 SERIES, MARSH OR U.S. GAUGE. PROVIDE T HANDLE. GAUGE COCKS ON GAUGES, EQUAL TO TERRICE #865. REFER TO DRAWINGS FOR PRESSURE RANGES OTHER THAN THOSE SPECIFIED.

THERMOMETERS WILL BE OF THE 1/4" VAPOR DIAL TYPE, WITH CAST ALUMINUM CASES, CHROME RINGS, BRASS SEPARABLE SOCKETS, AND RANGE

VACUUM BREAKERS SHALL BE WATTS NO. 288A, BEACON, OR CASH, OF 30 DEGREES TO 180 DEGREES F EQUAL TO TERRICE #W803000 SERIES, MARSH. CAULKING FERRULES, SOLDERING NIPPLES, AND BUSHING SHALL BE OF RED BRASS.

CHECK VALVES: BRASS BODY, BRASS SWING CHECK, FOR 2 INCH AND UNDER, NIBCO F-916-Y, OR APPROVED EQUAL, FOR 2 1/2 INCH AND OVER, IRON BODY, BRONZE TRIM, NIBCO F-916-Y, OR APPROVED EQUAL.

GATE VALVES: #125, RISING STEM, UNION BONNET, BRASS BODY, FOR 2 INCH AND UNDER, NIBCO T-134, OR APPROVED EQUAL, FOR 2 1/2 INCH AND OVER, IRON BODY, BRONZE TRIM, NIBCO F-617-0, OR APPROVED EQUAL.

BALL VALVES: BRASS BODY, TEFLON SEAT, 1 INCH AND UNDER, NIBCO 585, OR APPROVED EQUAL, 1 1/4 INCH THRU 2 INCH, NIBCO 585 APPROVED EQUAL.

BUTTERFLY VALVES: CAST IRON, DOUBLE LUG, WITH ALUMINUM BRONZE DISC, EPDM LINER, LEVER LOCK OPERATOR WITH 10 DEGREE NOTCHES, 6 INCH AND UNDER, NIBCO NL-082-3, OR APPROVED EQUAL.

BALANCING VALVES: APOLLO 70-200 SERIES WITH BALANCING STOPS AND LOCKED RETAINER.

DRAIN VALVES: JENKINS FIG. 372, HAMMOND, WALWORTH OR EQUAL, SCREWED ENDS, 2000 O.W.G. AND FITTED WITH CAP AND CHAIN, OR APOLLO NO. 78-203-01.

FLOOR DRAINS: SEE SCHEDULES ON DRAWINGS.

WALWORTH NO. 1796 WITH ATTACHED WRENCH.

FLOOR CLEANOUTS FOR SANITARY AND STORM DRAINS SHALL BE SMITH NO. 4021 NICKEL BRONZE TOP AND SECURED COVER. PROVIDE CARPET MARKERS IN CARPETED AREAS, GAS COCKS: 1/2" TO 2-1/2"; APOLLO NO. 70-100-07 CODE APPROVED AND LARGER; WALL CLEANOUTS: SMITH 4402 NICKEL BRONZE KNAULD SECURED COVER.

SHOCK ABSORBERS SHALL BE SMITH NOS. 5005, 5010 AND 5020 FOR SA-1 THROUGH SA-3, RESPECTIVELY.

2.02 ACCESS PANELS

FURNISH ACCESS PANELS OF SUFFICIENT SIZE TO FACILITATE SERVICING WHERE CLEANOUT, SHOCK ABSORBERS, EXPANSION JOINT TRAPS, OR WATER SHUT-OFF VALVES ARE CONCEALED IN FURRED SPACE 12"X12" MINIMUM.

PANELS SHALL BE MILCOR STYLE DW FOR PANELS IN DRYWALL, STYLE AP FOR PANELS IN PLASTER WALLS AND CEILINGS, AND STYLE W FOR PANELS IN MASONRY OR TILE WALLS AS MANUFACTURED BY INLET STEEL PRODUCTS CO. PANELS IN FIRE RATED WALLS AND CEILINGS SHALL BE UL LISTED AND LABELED FIRE DOORS. ALL PANELS SHALL BE FURNISHED WITH A SHOP PRIME COAT OF PAINT.

- PROVIDE COPPER FLASHING FOR ALL DRAINS NOT IN SLABS ON GRADE 16 OZ. COPPER, ASTM B-152, 18X18" MINIMUM, OR IF BEYOND FLANGES OF DRAINS.

2.03 PLUMBING FIXTURES

PROVIDE ALL FIXTURES IN ACCORDANCE WITH THE DRAWINGS AND SCHEDULE. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS OF ALL FIXTURES. COLOR OF FIXTURES SHALL BE WHITE.

FAUCETS AND ALL EXPOSED PIPING, VALVES AND FITTINGS SHALL BE CHROMIUM PLATED.

PLUMBING FIXTURES: THE FIXTURES LISTED ARE TO SHOW QUALITY OF FIXTURES REQUIRED, COMPLETE WITH ALL TRIM AND WASTE FITTINGS. UNLESS OTHERWISE NOTED.

PART 3 - EXECUTION

3.01 PIPING INSTALLATION

DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATIVE OF WORK TO BE INSTALLED. RUN AND ARRANGEMENT OF PIPING SHALL BE APPROXIMATELY AS INDICATED, SUBJECT TO MODIFICATIONS AS REQUIRED TO SUIT CONDITIONS AT BUILDING, TO AVOID INTERFERENCE WITH WORK OF OTHER TRADES, OR FOR PROPER CONVENIENT AND ACCESSIBLE LOCATION OF ALL PARTS OF PIPING SYSTEM. DUE TO SMALL SCALE OF DRAWINGS, ALL REQUIRED OFFSETS, FITTINGS, VALVES, TRAPS, DRAINS, ETC. MAY NOT BE INDICATED. REFER TO AND CAREFULLY CHECK ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND MECHANICAL DRAWINGS AND DETAILS, NOTING LOCATIONS WHERE WALLS, PARTITIONS, CEILINGS, BEAMS, COLLUMS, AND OTHER SURFACES ARE FURRED. LOCATION OF PIPE SHAFTS, AND CONFLICTS WITH WORK OF OTHER TRADES, AND ARRANGE WORK ACCORDINGLY, FURNISHING ALL OFFSETS, FITTINGS VALVES, TRAPS, DRAINS, ETC., REQUIRED TO MEET SUCH CONDITIONS.

RUN PIPE CONCEALED IN WALL CHASES, RECESSES, PIPE SHAFTS, AND ABOVE CEILINGS, WHEREVER POSSIBLE. EXTERIOR UTILITIES ARE DIAGRAMMATIC, AND EXACT LOCATION AND INVERT ELEVATIONS SHALL BE INDICATED OR REQUIRED TO MEET FIELD CONDITIONS. DO NOT PERMANENTLY CLOSE UP.

FURR IN, OR COVER PIPING BEFORE EXAMINATION AND TEST.

RUN PIPING STRAIGHT AND DIRECT AS POSSIBLE, IN GENERAL FORMING RIGHT ANGLES WITH OR PARALLEL WITH WALLS OR OTHER PIPING, AND NEATLY SPACED, WITH RISERS ERECTED PLUMB AND TRUE. INSTALL PIPING SO THAT THERE IS CLEARANCE OF AT LEAST 1" BETWEEN FINISHED COVERINGS

(FITTINGS HUBS ON UNCOVERED PIPING) OF PIPING AND ALSO BETWEEN FINISHED COVERINGS, OR FITTINGS, HUBS, AND ADJOINING WORK. HANG PIPING AT OR IN CEILING FROM CONSTRUCTION ABOVE, AS CLOSE AS POSSIBLE TO BOTTOM OF SLABS, BEAMS, ETC., MAINTAINING MAXIMUM HEADROOM AT ALL TIMES. CHECK DRAWINGS FOR CEILING HEIGHT AND CONSTRUCTION AND INSTALL WORK ABOVE THIS HEIGHT.

NO EXPOSED CHROMIUM PLATED (CP) PIPING SHALL BE SHOWN ANY TOOL MARKS OR MORE THAN ONE THREAD AT FITTINGS. FITTINGS AND VALVES ON CP PIPING SHALL HAVE CP FINISH.

USE REDUCING FITTINGS FOR CHANGES IN PIPE SIZE. DO NOT USE BUSHINGS.

3.02 HANGERS AND SUPPORTS

HANGERS AND SUPPORT PIPING FROM BUILDING STRUCTURE TO MAINTAIN REQUIRED GRADE AND PITCH OF PIPE LINES, PREVENT VIBRATION SECURE PIPING IN PLACE, AND PROVIDE FOR EXPANSION AND CONTRACTION. PROVIDE LOOKNUTS ON ALL HANGERS AND SUPPORTS. HANGERS SHALL BE SECURED TO INSERTS WHEREVER PRACTICAL. SET INSERTS BEFORE CONCRETE IS PLACED. PROVIDE ATTACHMENTS FOR PRECAST CONCRETE PLANK.

HANGERS SHALL BE ADJUSTABLE CLEVIS HANGER TYPE. HANGER RODS SHALL HAVE MACHINE THREADS. HANGERS SHALL BE GRINNEL FIG. 260 FOR FERROUS PIPING AND FIGURE CT-465 FOR COPPER TUBING. GANG HANGERS MAY BE USED.

SUPPORT HORIZONTAL PIPING AT LEAST AS FOLLOWS: SCREWED PIPING EVERY 9 FEET, COPPER TUBING EVERY 7 FEET, CAST IRON HUB AND SPIGOT AND HUBLESS EVERY 5 FEET AT EACH HUB OR CLAMP, AND STEEL PIPE EVERY 10 FEET. BRANCHES: SEPARATE SUPPORTS, AND NO BRANCH 5 FEET OR LONGER WITHOUT SUPPORT.

PROVIDE METAL COVERING SHIELDS ON HANGERS FOR INSULATED PIPING TO PROTECT COVERING.

PROVIDE APPROVED MATERIAL BETWEEN IRON SUPPORTS AND COPPER OR BRASS PIPING TO PREVENT REACTION BETWEEN METALS.

3.03 SLEEVES

SLEEVES SHALL BE INSTALLED AROUND ALL PIPING PASSING THROUGH MASONRY FOUNDATIONS, WALLS, FLOORS, SLABS, PARTITIONS OR OTHER BUILDING CONSTRUCTION. SLEEVES SHALL BE SET IN NEW CONCRETE CONSTRUCTION BEFORE POURING. PLUMBING SUBCONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION, SETTING, AND ANCHORING OR SLEEVES IN A SUBSTANTIAL MANNER. SEE DETAILS ON DRAWINGS FOR INSTALLATION OF PIPING THROUGH FIRE WALLS.

3.04 INSULATION

DOMESTIC HOT WATER, HOT WATER REDCIRCULATING AND COLD WATER PIPING SHALL BE COVERED WITH 3.5 DENSITY FIBERGLASS, WITH WHITE KRAFT PAPER AND FIBERGLASS REINFORCED ALUMINUM FOIL VAPOR BARRIER JACKET. INSULATION THICKNESS SHALL BE 1/2" FOR COLD WATER AND 1-1/4" FOR HOT WATER AND HOT WATER REDCIRCULATING AND 1-1/2" FOR 180 DEGREE HOT WATER. ALL ABOVE GROUND HORIZONTAL ROOF DRAIN CONDUCTORS AND ROOF DRAIN BOWLS SHALL BE COVERED WITH 1" THICK FIBERGLASS BLANKET INSULATION WITH VINYL JACKET TO ONE FOOT BELOW CHANGE TO VERTICAL.

DOMESTIC HOT AND COLD WATER LINES IN WALLS AND CHASES MAY BE INSULATED WITH O.C. FLEXIBLE (RIGID) TUBING INSULATION, 1/2" THICK. RIGID TUBING SHALL BE APPLIED AT HANGER LOCATIONS, AS BOTTOM SUPPORTING HALF SECTION MATCHED WITH TOP HALF SECTION OF FLEXIBLE OR RIGID TUBING. IN ALL CASES, LONGITUDINAL JOINTS SHALL BE IN HORIZONTAL PLANE. AN 18 GAUGE METAL SHIELD, SAME LENGTH AS O.C. RIGID TUBING, IS TO BE USED AT ALL PIPE HANGER LOCATIONS, BUTT ENDS AND LONGITUDINAL JOINTS SHALL BE SEALED WITH O.C. 500 ADHESIVE. ALL FITTINGS SHALL BE FABRICATED FROM O.C. FLEXIBLE OR RIGID TUBING. INSULATION IN NESTING SIZES. JOIN SLIT AND MITERED JOINTS WITH O.C. 500 ADHESIVE.

INSULATION SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. INSULATION SHALL BE AS MANUFACTURED BY GUSTIN-BACON, OWENS CORNING FIBERGLASS, KNAUF, OR EQUAL.

3.05 INTERIOR DOMESTIC WATER PIPING SYSTEMS

HOT AND COLD WATER SUPPLY SYSTEM SHALL BE RUN AS INDICATED, INCLUDING MAINS, RISERS, OR FIXTURES, SHALL BE FROM TOP OF MAINS, EXCEPT AS NOTED, AND ALL PIPING SHALL BE PITCHED AT LEAST 1/4" IN 40 FEET, SO THAT IT CAN BE DRAINED COMPLETELY AT RISERS AND FIXTURES FOR PROPER AIR RELIEF. PROVIDE DRAIN VALVES AT ALL LOW POINTS IN SYSTEM.

PROVIDE SHOCK ABSORBERS FOR ALL HOT AND COLD WATER SUPPLY LINES TO FIXTURES AND EQUIPMENT UNDER OTHER SECTIONS. WHERE SHOCK ABSORBERS ARE NOT SCHEDULED PROVIDE FULL SIZE, 12" HIGH, AIR CHAMBERS AT ALL FIXTURES SUPPLIES.

SHUT-OFF AND CONTROL VALVES ON MAIN DISTRIBUTION AND BRANCH LINES SHALL BE LOCATED FOR EASY ACCESS AND OPERATION.

3.06 RECORD DRAWINGS

THIS CONTRACTOR SHALL MAINTAIN AND SUBMIT RECORD DRAWINGS, ON WHICH SHALL AT ALL TIMES, CLEARLY AND COMPLETELY SHOWN THE ACTUAL INSTALLATION IN ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION.

WHEREVER THE WORK WAS INSTALLED OTHER THAN AS SHOWN ON THE CONTRACT DRAWINGS, SAID CHANGES SHALL BE INDICATED ON THE "AS-BUILT" PRINTS. ANY ADDENDA SKETCHES AND SUPPLEMENTARY DRAWINGS ISSUED DURING THE COURSE OF CONSTRUCTION SHALL ALSO BE INCORPORATED ON THE "AS-BUILT" PRINTS.

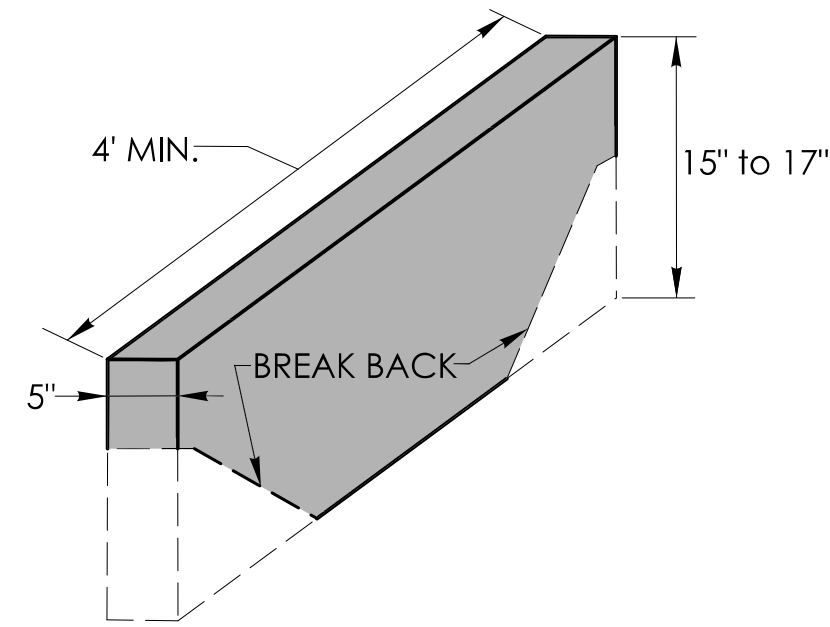
THE "AS-BUILT" DRAWINGS SHALL BE KEPT UP TO DATE AND BE AVAILABLE TO THE ENGINEER FOR INSPECTION AT ALL TIMES.

UPON RECEIPT OF APPROVAL OF THE "AS-BUILT" DRAWINGS, PHOTO REPRODUCTIONS OF THE ORIGINAL TRACINGS ON MYLAR TRANSPARENCIES SHALL BE REVISED TO INCORPORATE ALL THE CHANGES ON THE "AS-BUILT" DRAWINGS. THESE REPRODUCIBLE TRANSPARENCIES SHALL BE CERTIFIED AS CORRECT AND DELIVERED TO THE ENGINEER ALONG WITH (2) SETS OF BLACK LINE PRINTS AS "RECORD DRAWINGS"

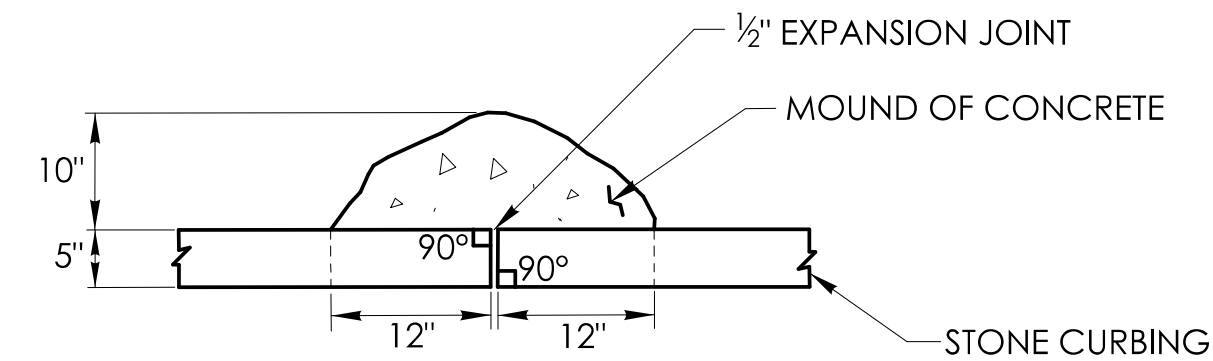
ALL COSTS RELATIVE TO THESE RECORD DRAWINGS SHALL BE PAID BY THIS CONTRACTOR.

3.09 RUBBISH REMOVAL

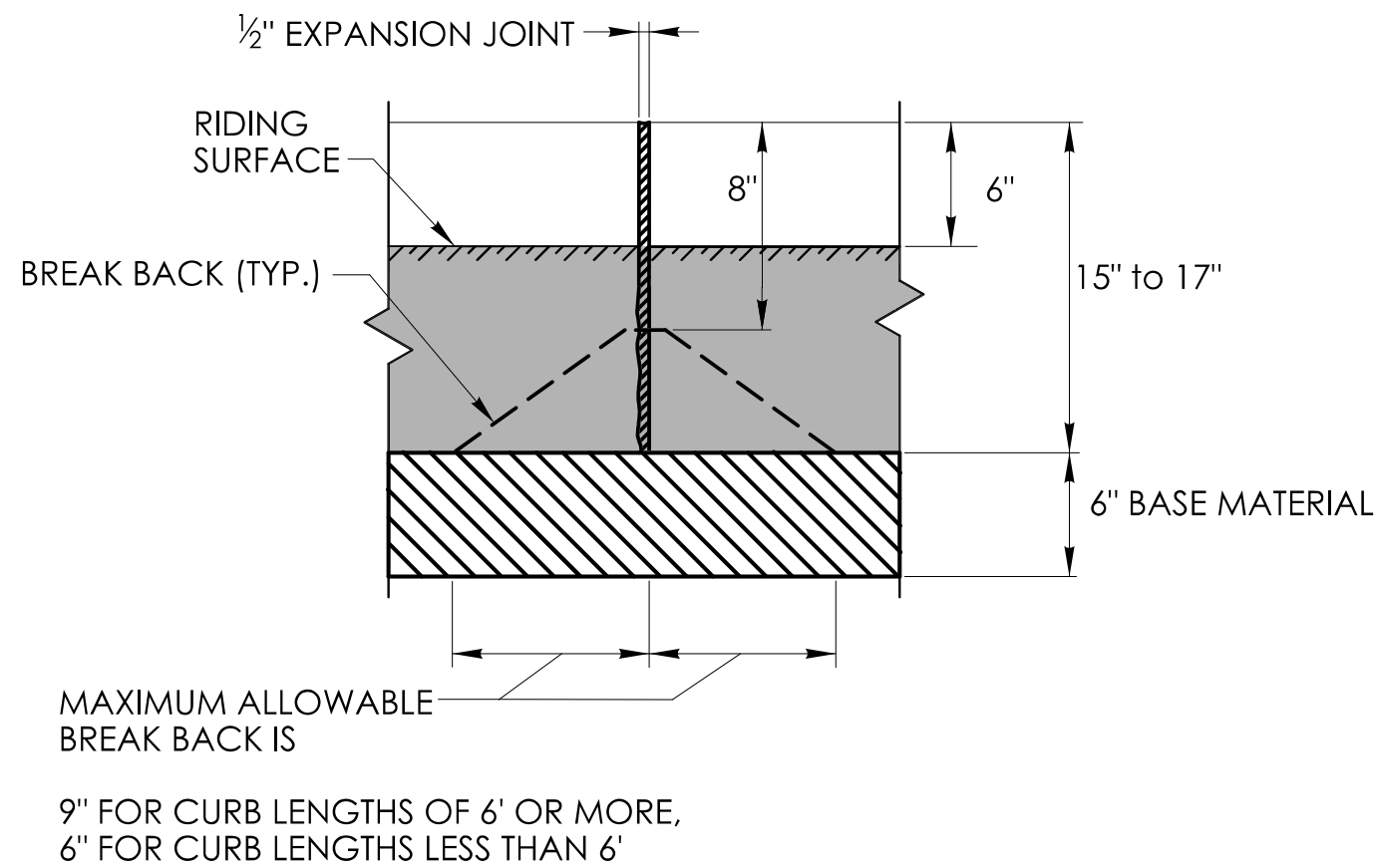
AT THE COMPLETION OF EACH DAYS WORK, THIS CONTRACTOR SHALL REMOVE FROM THE PREMISES, ALL RUBBISH OR WASTE MATERIAL BELONGING TO HIM.



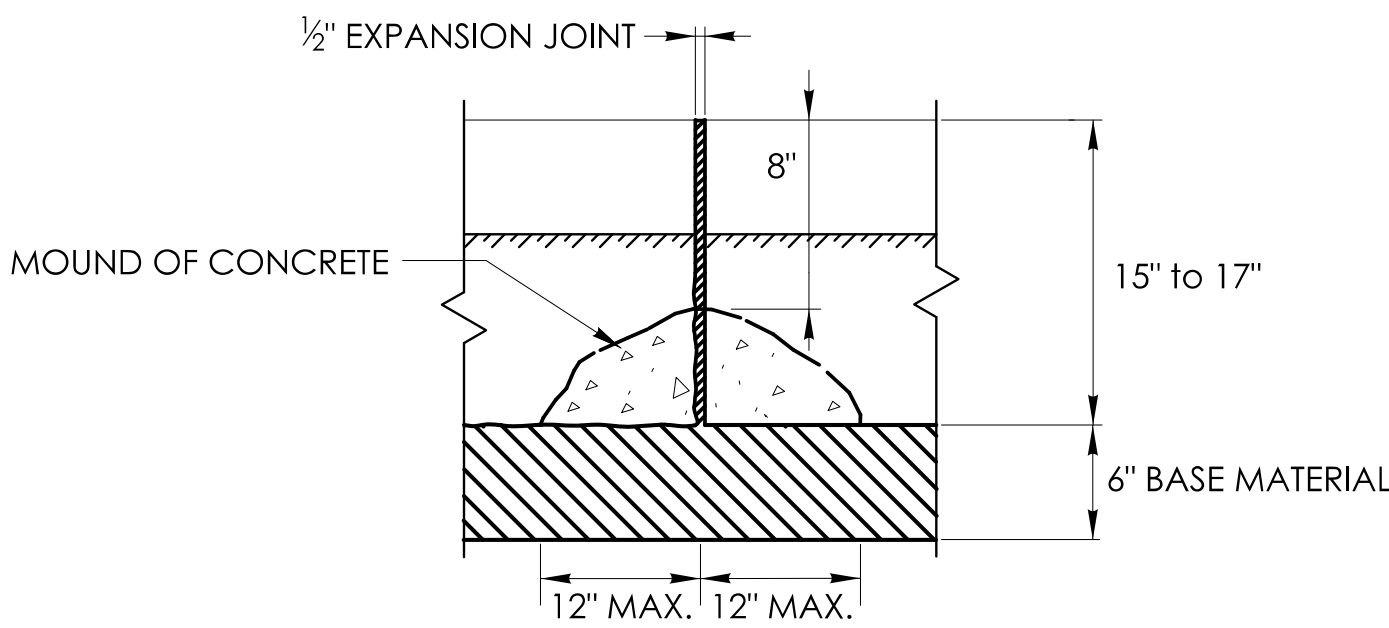
STONE CURBING



PLAN

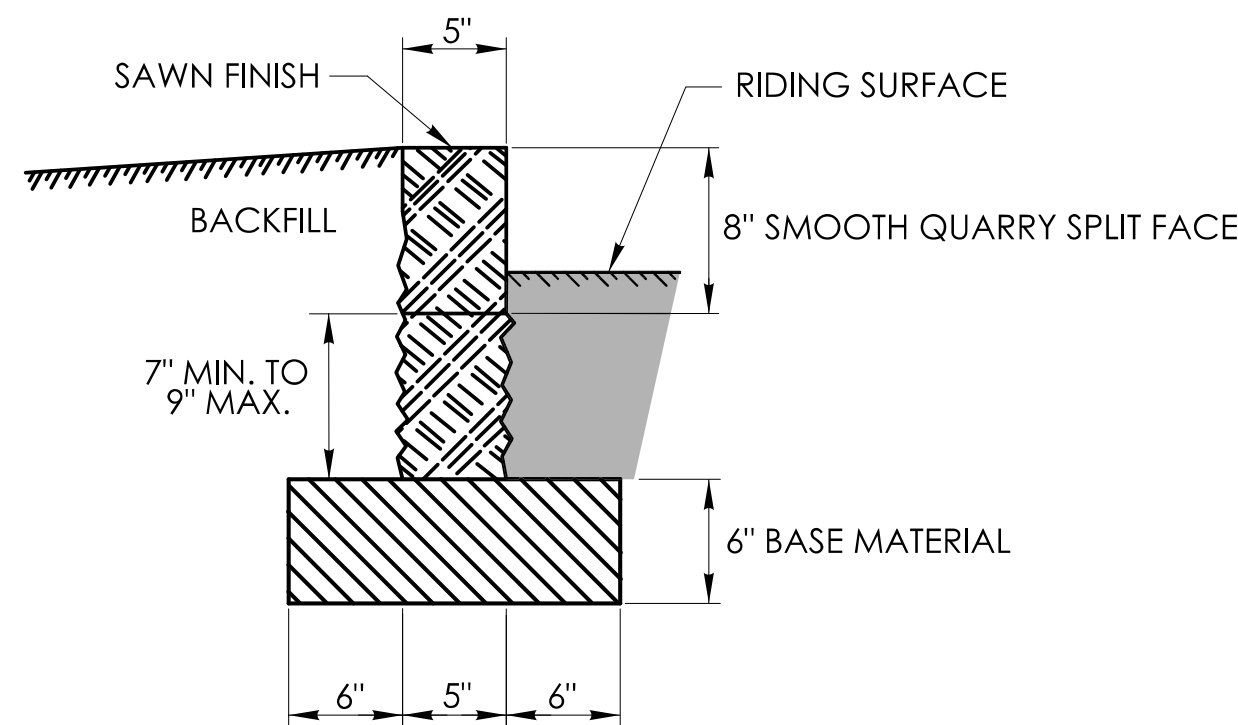


FRONT
ELEVATION



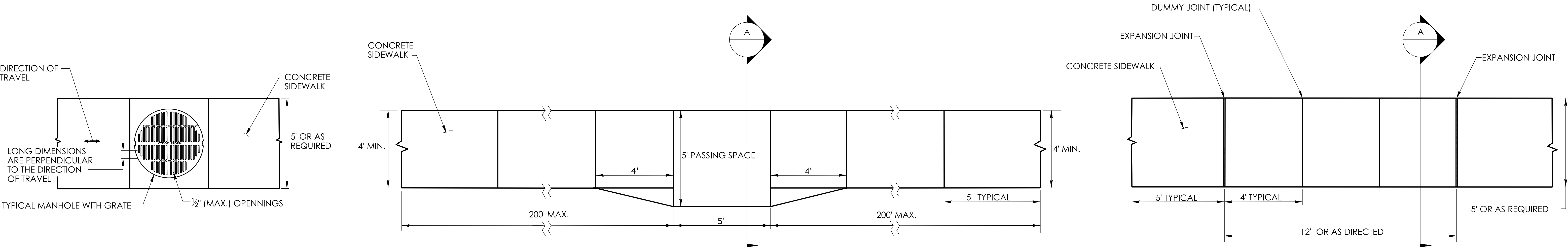
BACK
ELEVATION

MOUND OF CONCRETE AT ALL JOINTS
FOR STONE CURBING



SECTION

GENERAL NOTES:
1. SEE CONCRETE SIDEWALK RAMPS GUIDE SHEETS FOR PEDESTRIAN RAMP TYPES.
2. ALL CURBING SHALL BE INSTALLED AS EITHER PRECAST OR CAST IN PLACE AS DIRECTED.



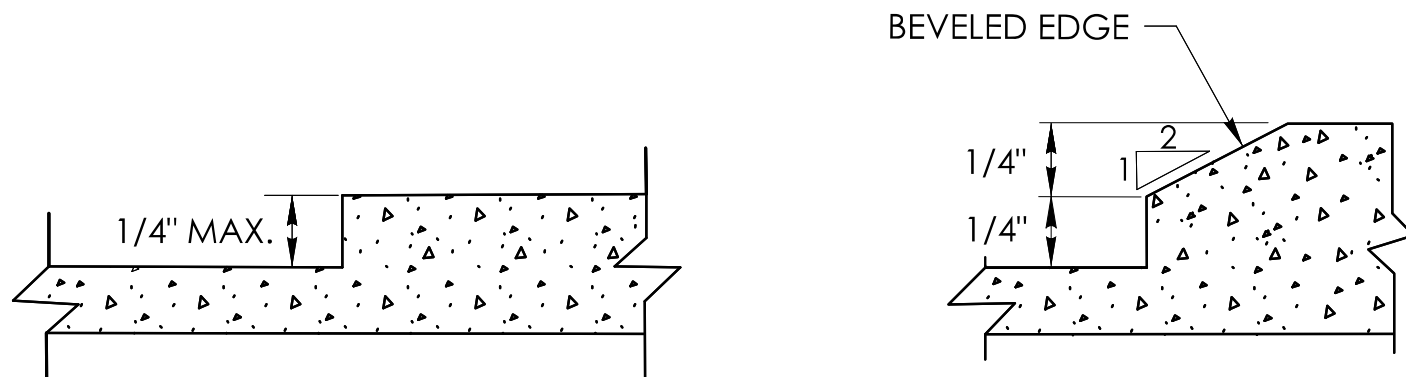
**PEDESTRIAN ACCESS ROUTE
OVER A MANHOLE WITH GRATE**

1. HORIZONTAL OPENINGS IN GRATES AND JOINTS MUST NOT BE MORE THAN 1/2 INCH
2. ELONGATED OPENINGS IN GRATES MUST BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DIRECTION OF TRAVEL

**5' PASSING SPACE FOR 4' WIDE SIDEWALK
PLAN**

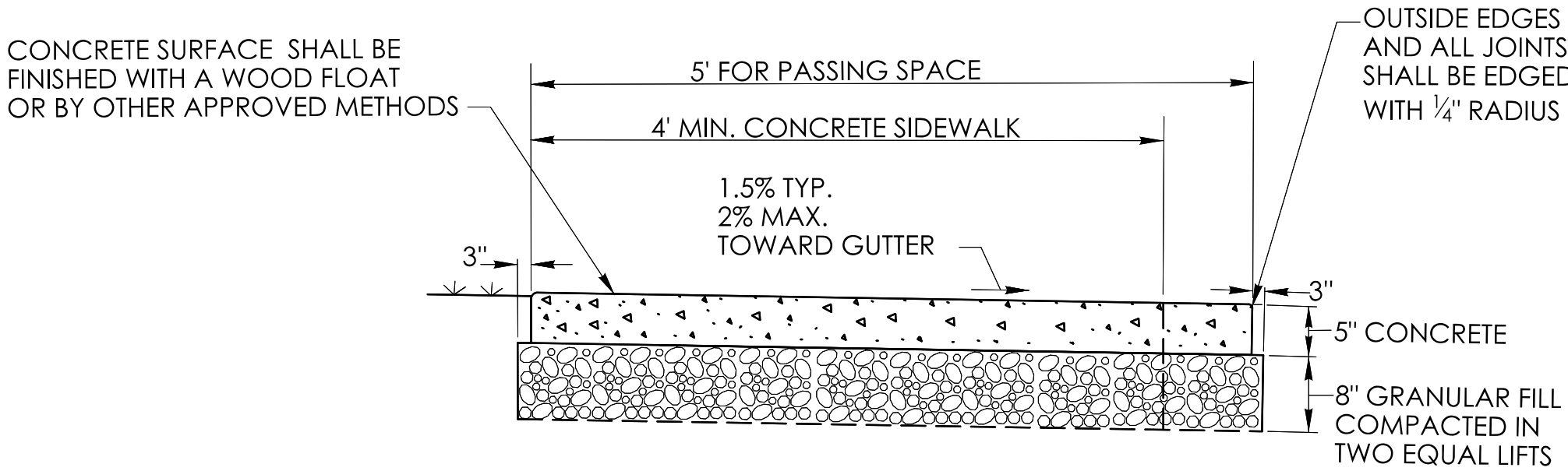
PASSING SPACES SHALL BE PROVIDED AT INTERVALS OF 200' MAXIMUM FOR SIDEWALKS LESS THAN 5' IN WIDTH

**5' WIDE SIDEWALK
PLAN**



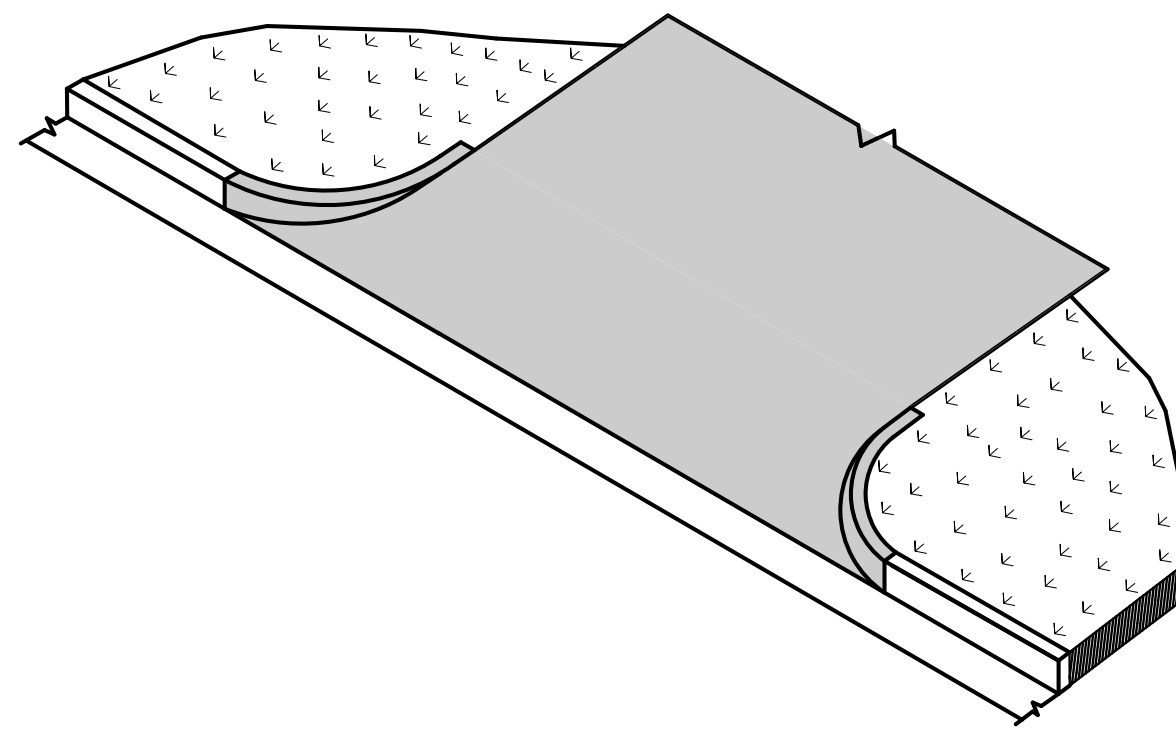
VERTICAL SURFACE DISCONTINUITIES

VERTICAL SURFACE DISCONTINUITIES MUST BE BEVELED TO A HEIGHT NOT GREATER THAN 1/4 INCH. THE BEVEL MUST BE THE ENTIRE WIDTH OF THE DISCONTINUITY

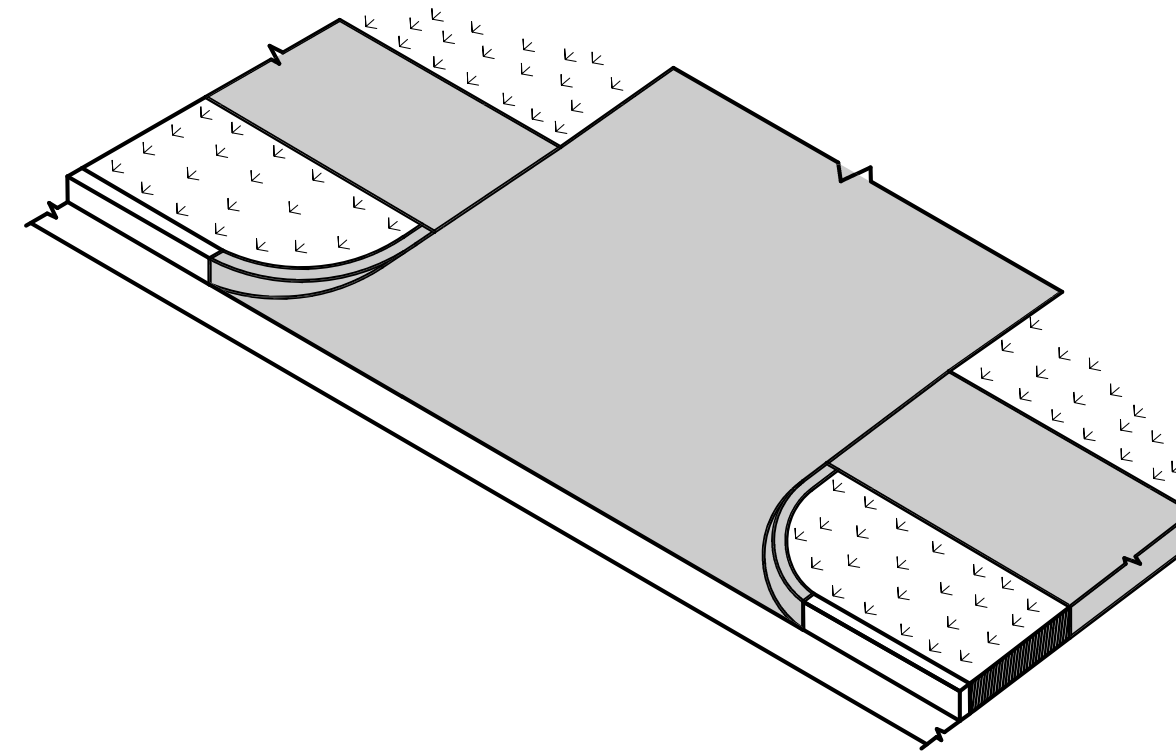


5' PASSING SPACE FOR 4' WIDE SIDEWALK

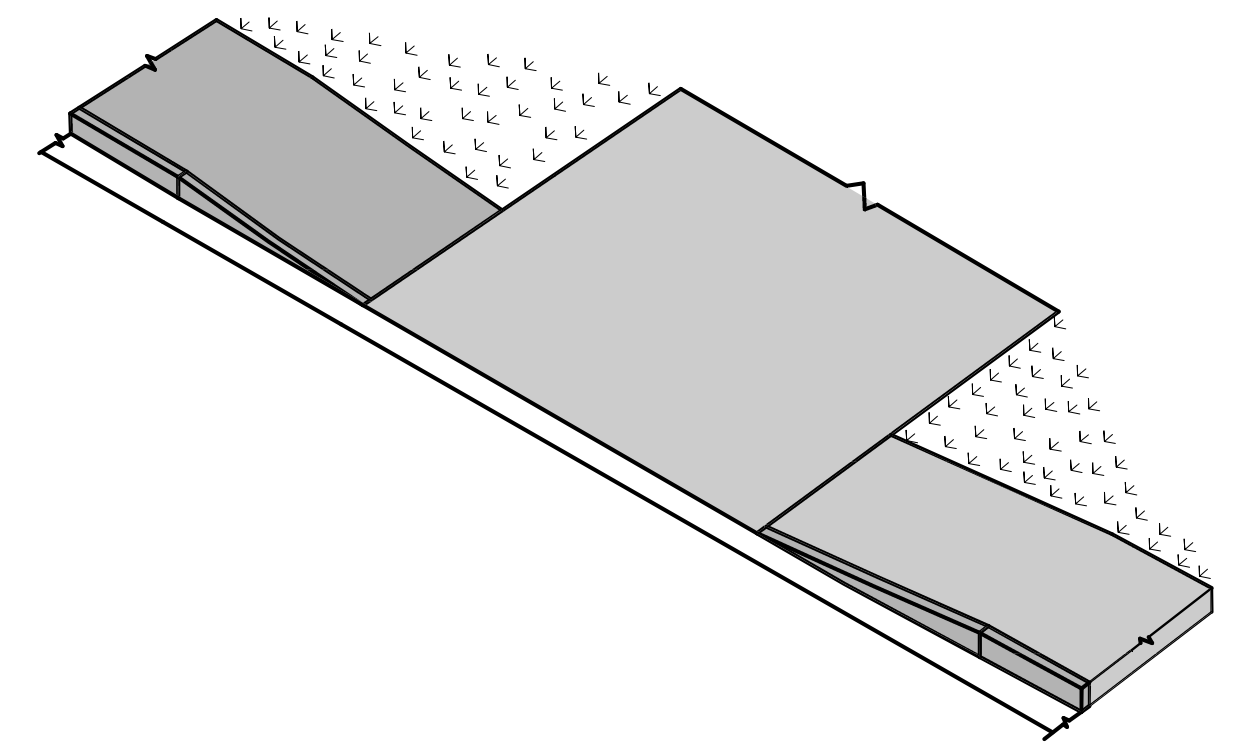
SECTION **A**



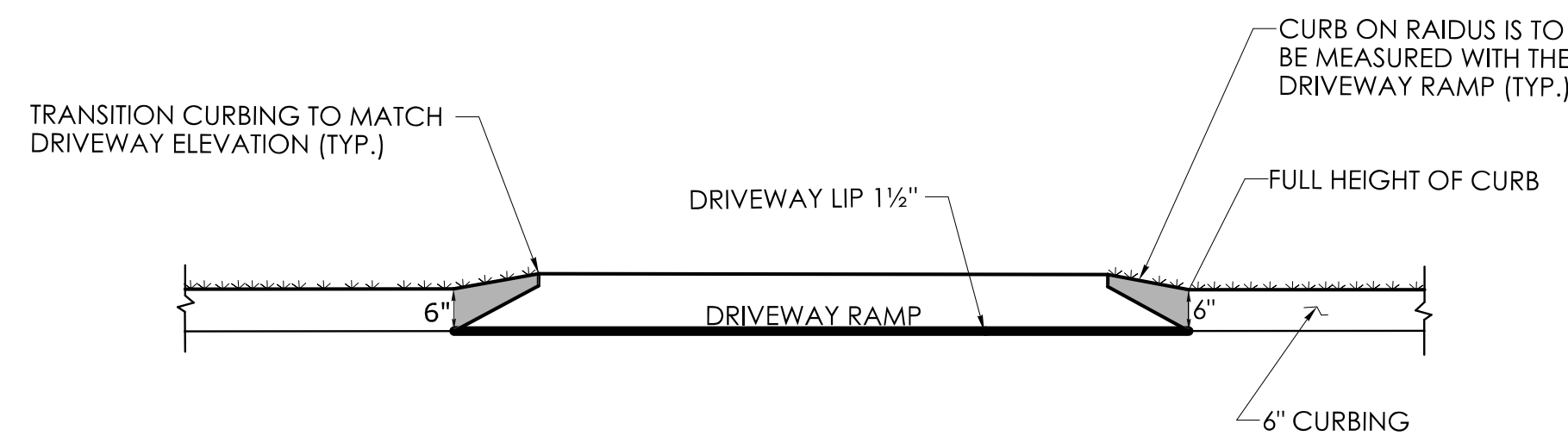
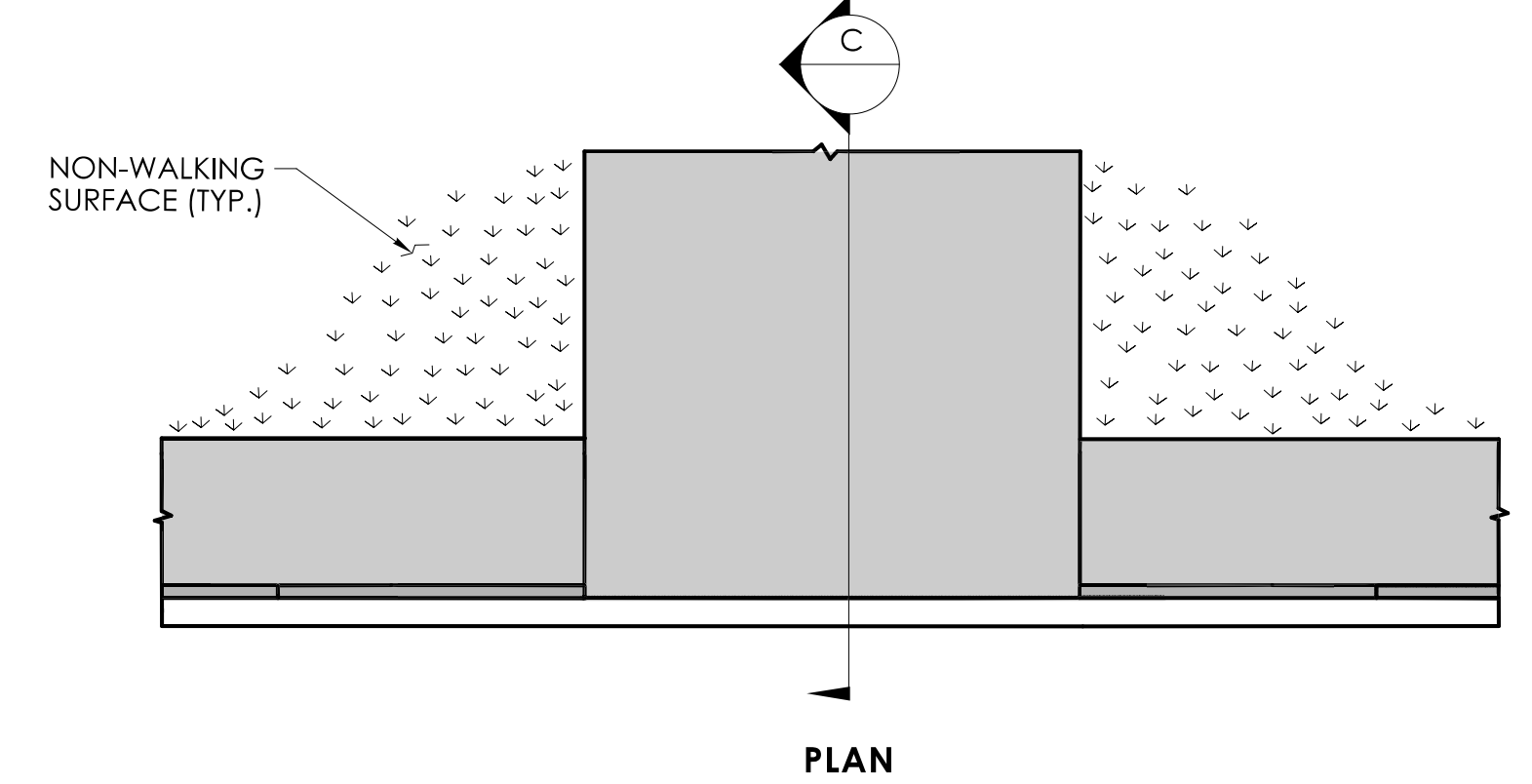
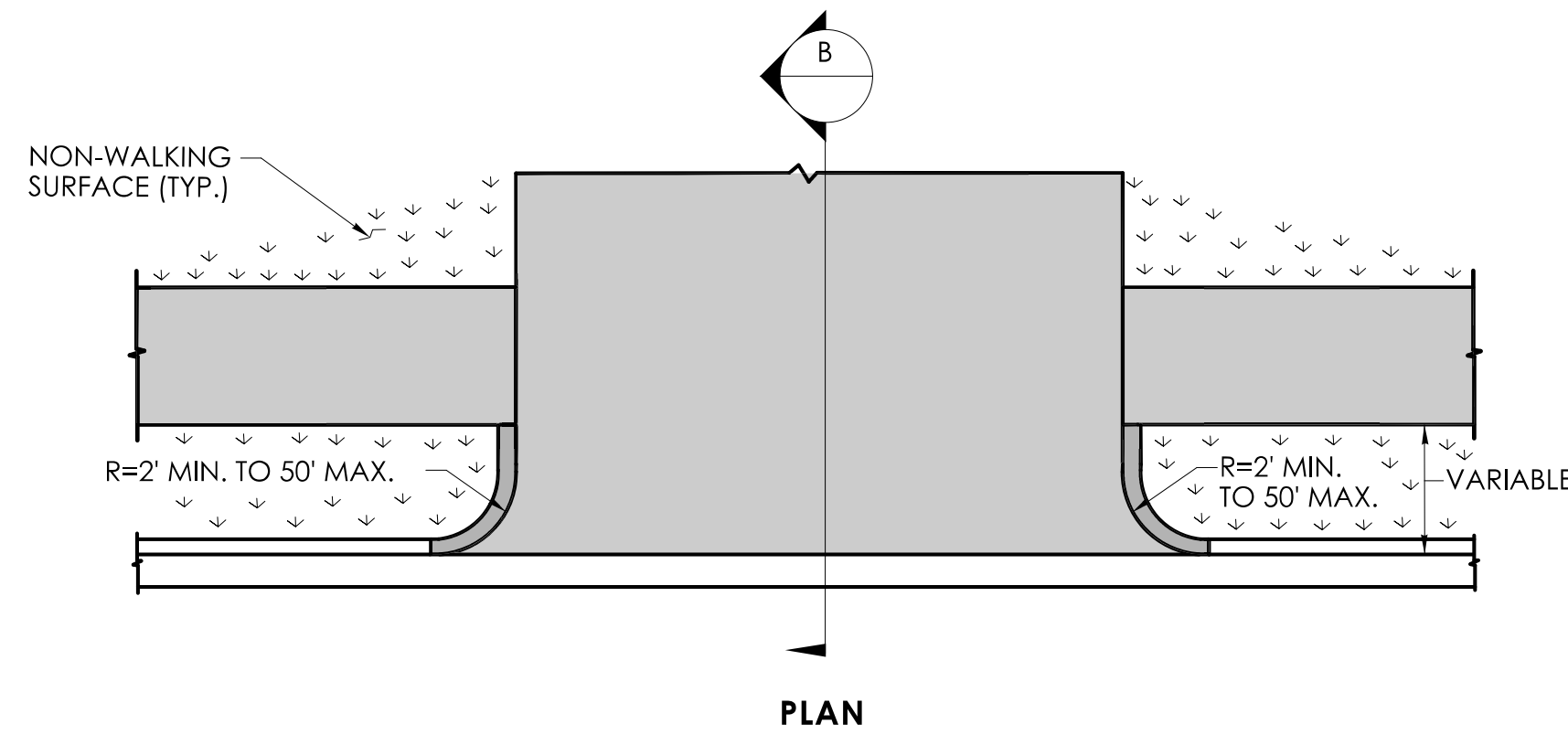
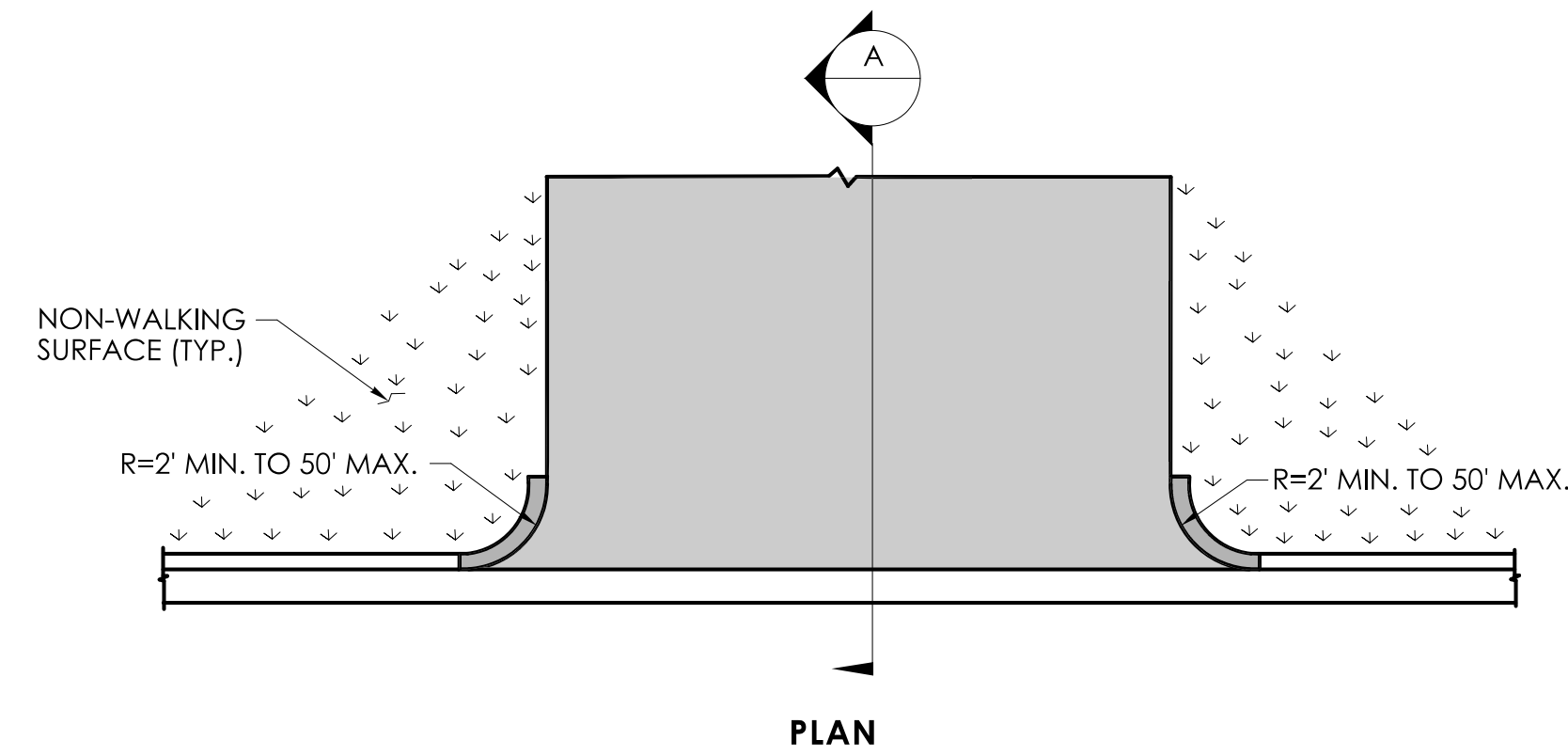
BITUMINOUS CONCRETE DRIVEWAY



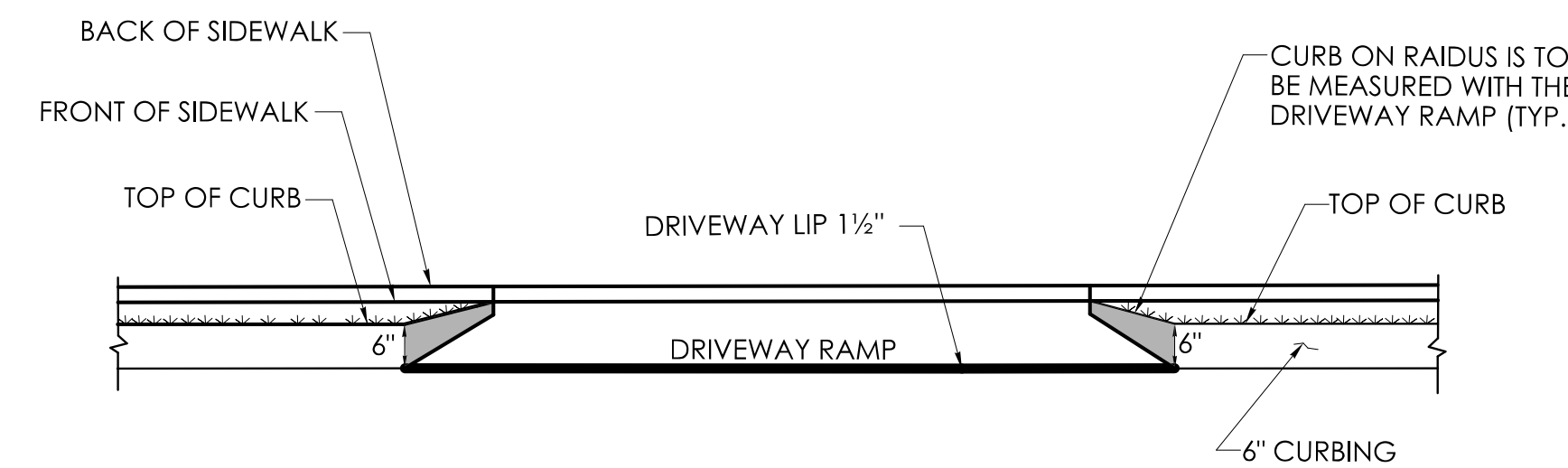
BITUMINOUS CONCRETE DRIVEWAY
WITH A PEDESTRIAN SIDEWALK SETBACK



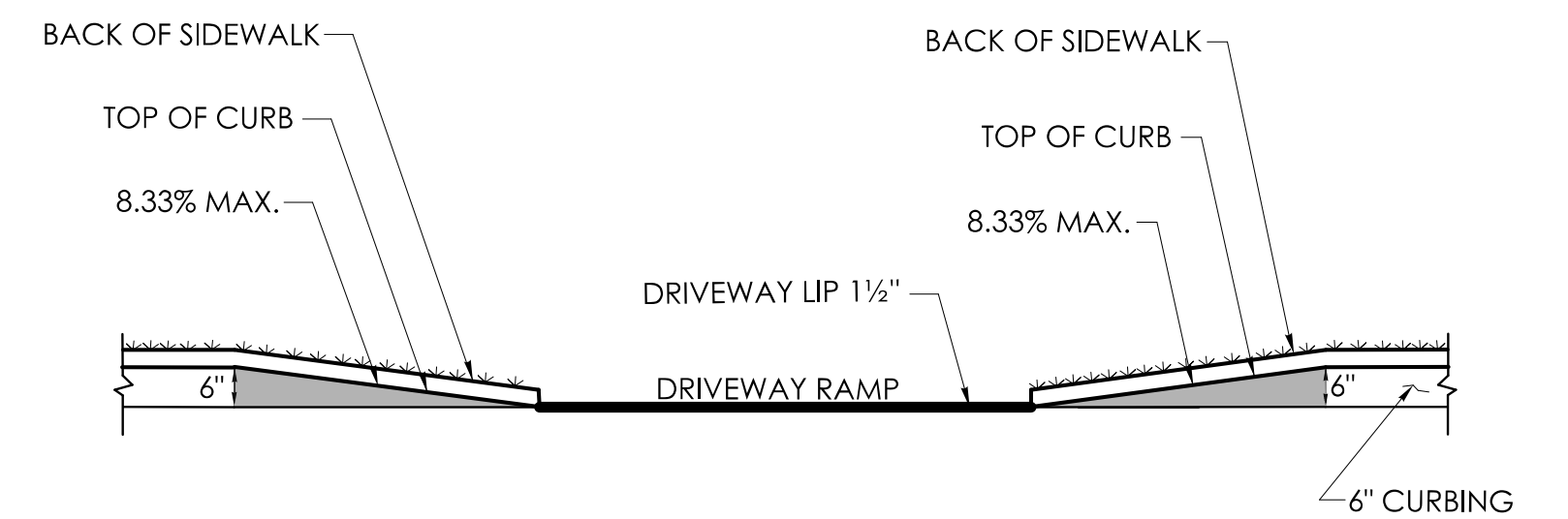
BITUMINOUS CONCRETE DRIVEWAY
WITH PEDESTRIAN SIDEWALK AT THE CURB



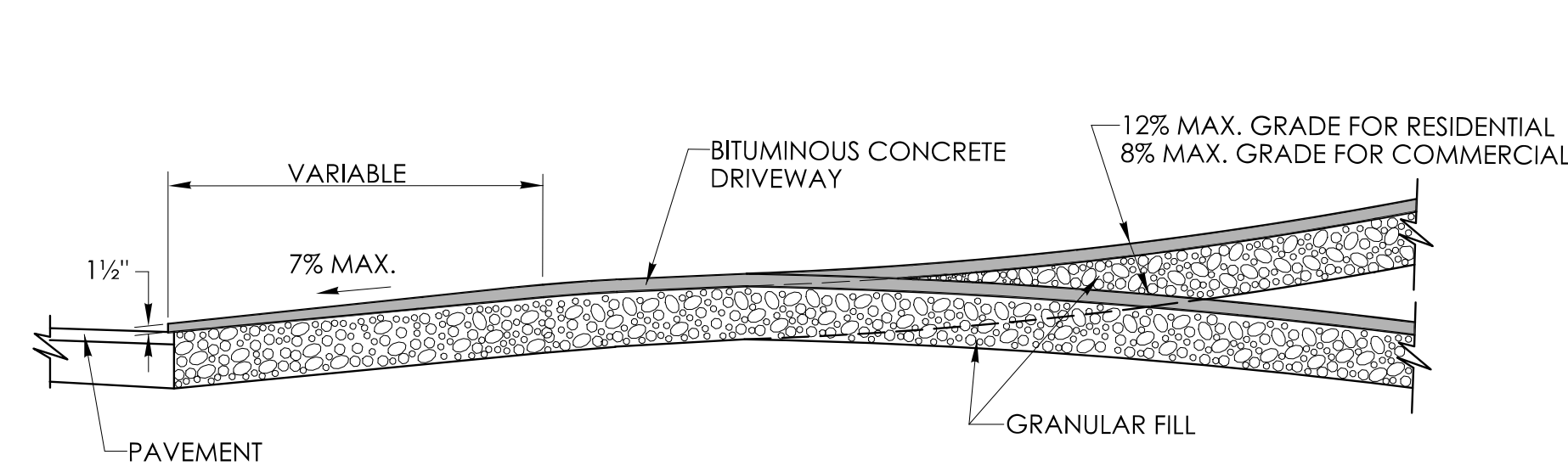
ELEVATION



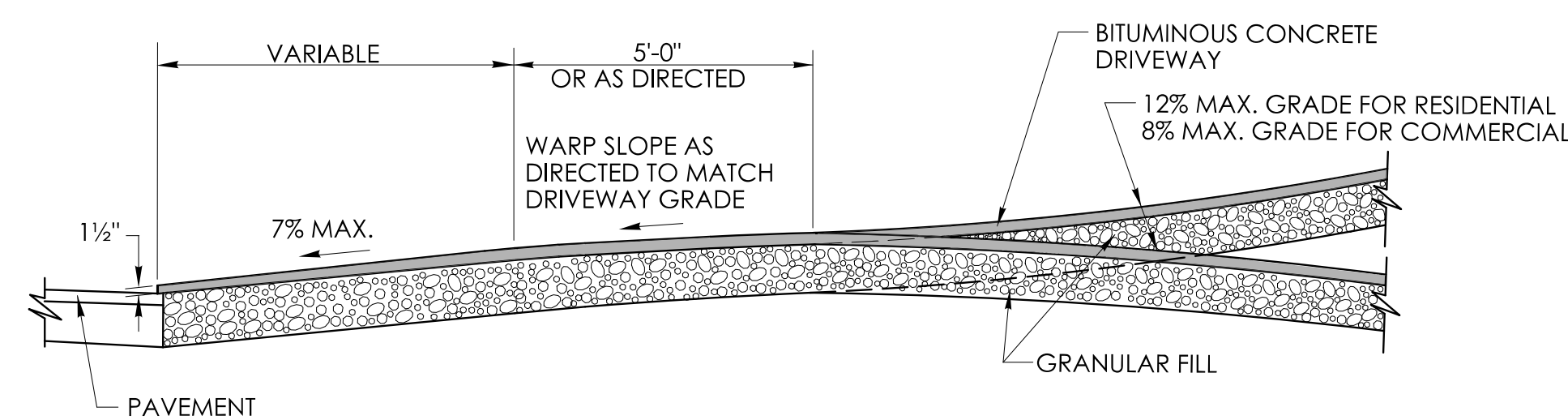
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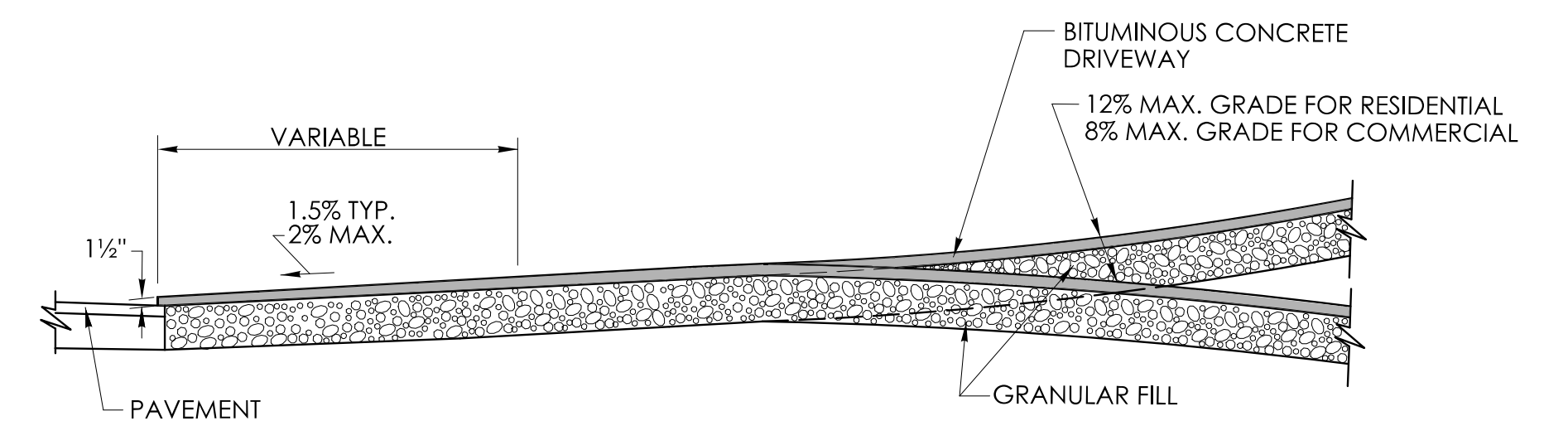
ELEVATION



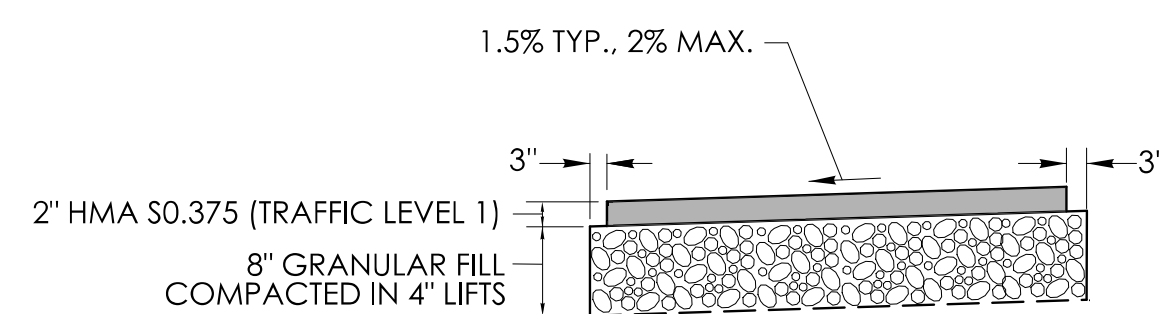
SECTION A



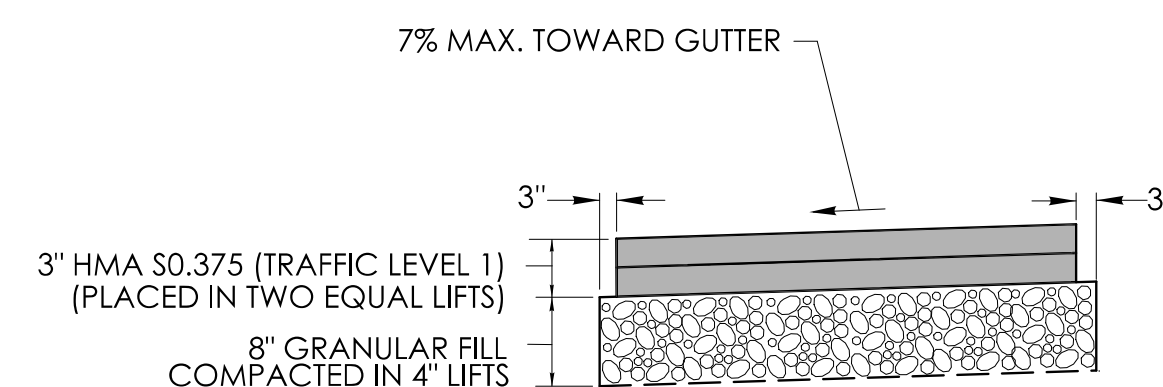
SECTION B



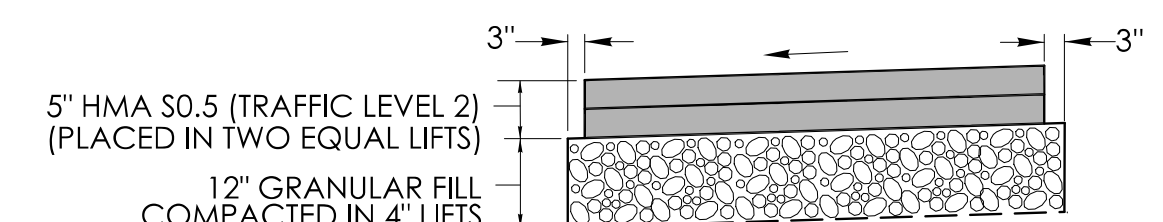
SECTION C



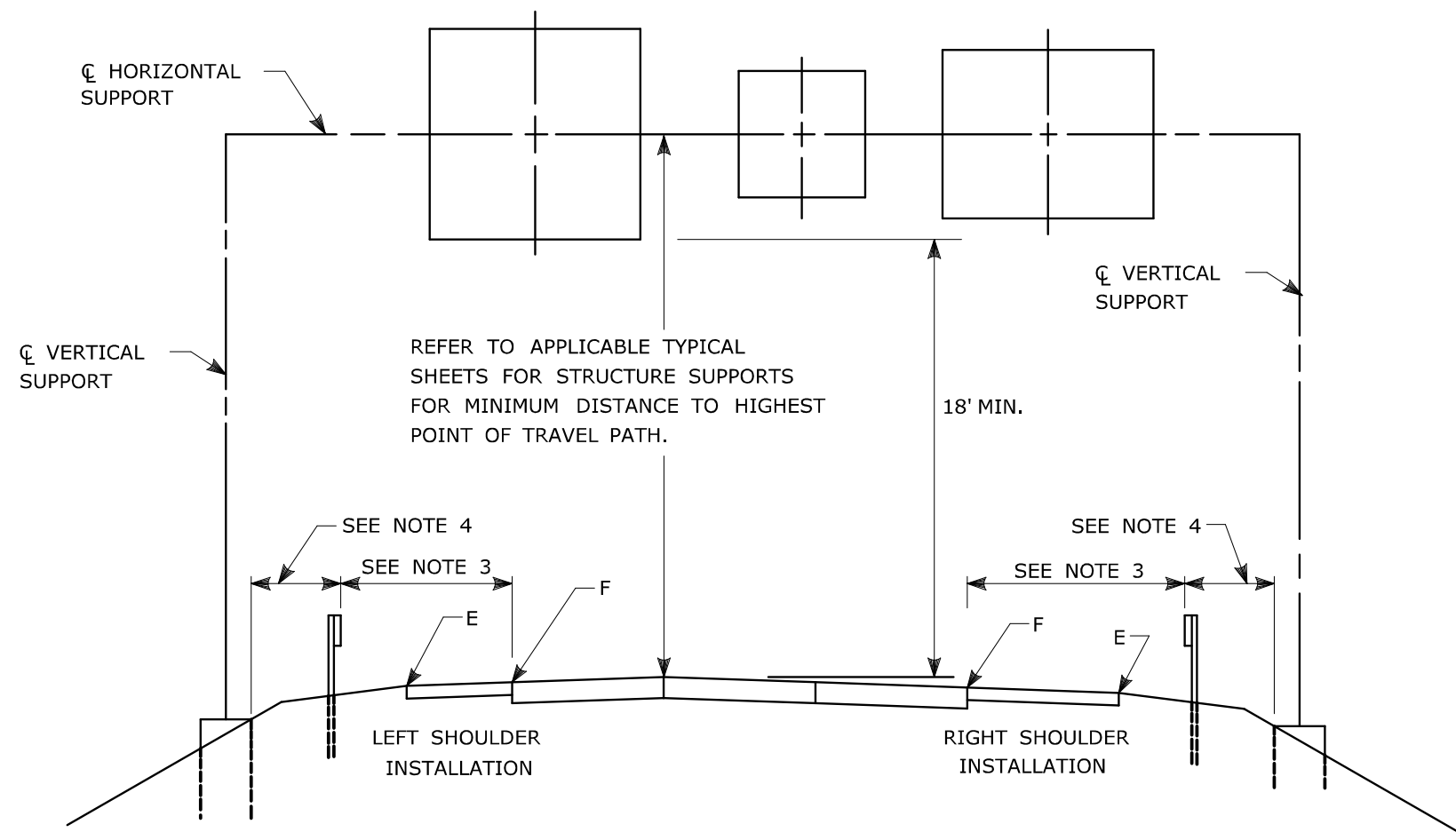
BITUMINOUS CONCRETE SIDEWALK



BITUMINOUS CONCRETE DRIVEWAY



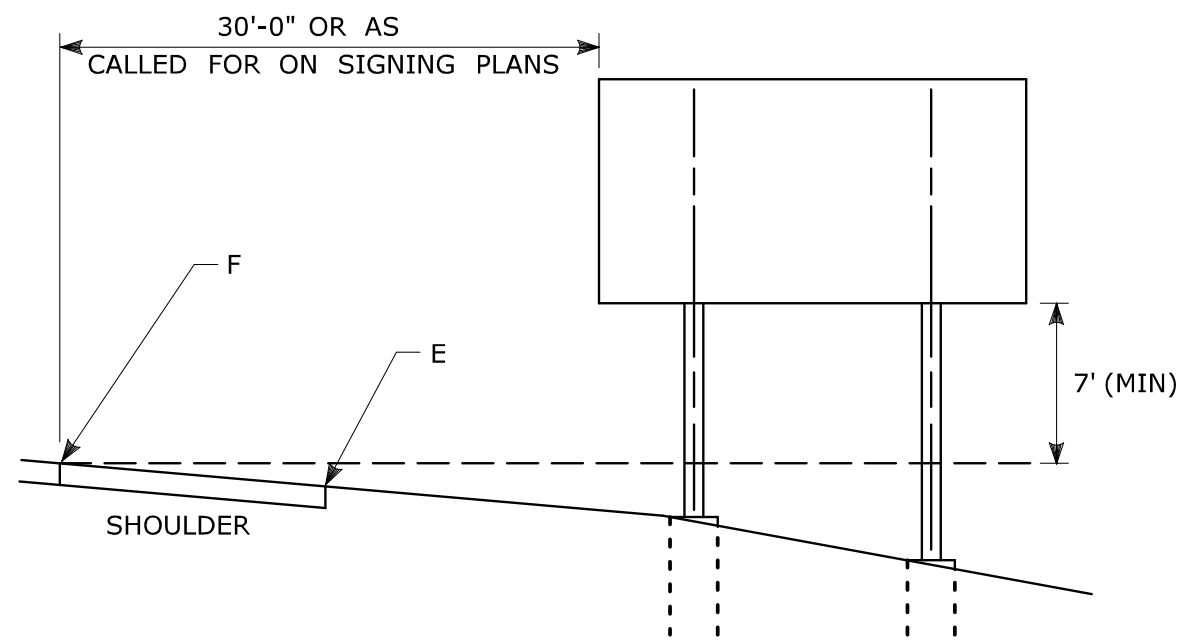
COMMERCIAL
BITUMINOUS CONCRETE DRIVEWAY



TYPICAL PLACEMENT OF OVERHEAD SIGNS ON SIGN SUPPORTS

NOTES:

- 1) FOR PLACEMENT OF CANTILEVER SIGN SUPPORT USE APPLICABLE PORTION OF ABOVE DETAIL.
- 2) BARRIER SYSTEMS MAY BE REQUIRED FOR BOTH SIDES OF SUPPORTS IN MEDIANS.
- 3) IMPACT PROTECTION SHALL BE PROVIDED FOR THE SIGN SUPPORTS LOCATED WITHIN CLEAR ZONE.
- 4) SIGN SUPPORT FOUNDATIONS SHALL BE LOCATED OUTSIDE OF BARRIER SYSTEMS DEFLECTION AREA.
- 5) ALL SIGNS ARE TO BE LEVEL, REGARDLESS OF CAMBER IN SUPPORT.



TYPICAL PLACEMENT OF SIDE MOUNTED SIGNS ON STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS

NOTES:

- 1) MIN. VERTICAL CLEARANCE ABOVE SIDEWALKS SHALL BE 7'.
- 2) WHERE GUIDE RAIL IS USED, THE OFFSET TO THE NEAR EDGE OF SIGN FACE SHALL BE AS SHOWN ELSEWHERE IN THE CONTRACT PLANS.
- 3) ON INTERSECTING ROADS AT RAMP TERMINI, THE OFFSET TO THE NEAR EDGE OF OF SIGN FACE SHALL BE 6' MIN. FROM POINT "E".
- 4) IF 30'-0" MIN. CANNOT BE MET, PLEASE CONTACT THE ENGINEER.

FOR MAXIMUM EFFECTIVENESS, POSITION SIDE MOUNTED SIGNS ON STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS AS FOLLOWS:

ON A TANGENT SECTION, POSITION THE SIGN SO THE VERTICAL AXIS IS PLUMB AND THE HORIZONTAL AXIS IS AT AN ANGLE OF 90° WITH THE TRAFFIC LANE WHICH THE SIGN SERVES. SIGNS LOCATED 30 FT OR MORE FROM THE EDGE OF THE ROAD SHALL BE TURNED APPROXIMATELY 3° TOWARD THE ROAD.

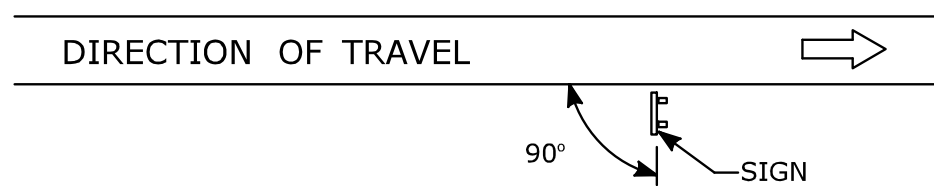


DIAGRAM "A"

ON A HORIZONTAL CURVE SECTION, POSITION THE SIGN SO THE VERTICAL AXIS IS PLUMB AND THE HORIZONTAL AXIS IS AT AN ANGLE OF 90° WITH A STRAIGHT LINE BETWEEN THE SIGN AND THE POINT AT WHICH THE SIGN SHALL BE READ.

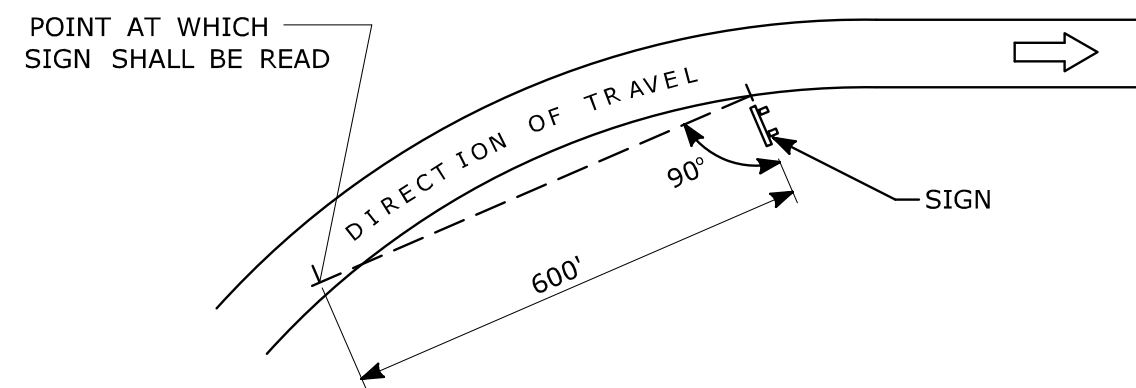


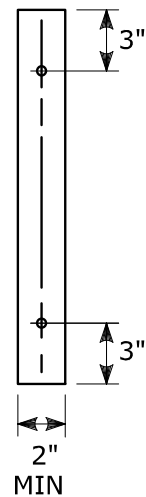
DIAGRAM "B"

SIGN ORIENTATION DETAILS

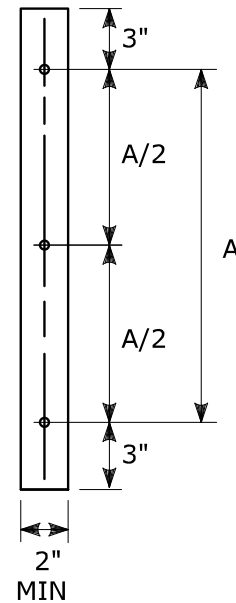
FOR SIDE MOUNTED SIGNS ON

STRUCTURAL STEEL BREAKAWAY SIGN SUPPORTS

RETROREFLECTIVE STRIPS
48" LONG OR LESS:



RETROREFLECTIVE STRIPS
OVER 48" LONG:

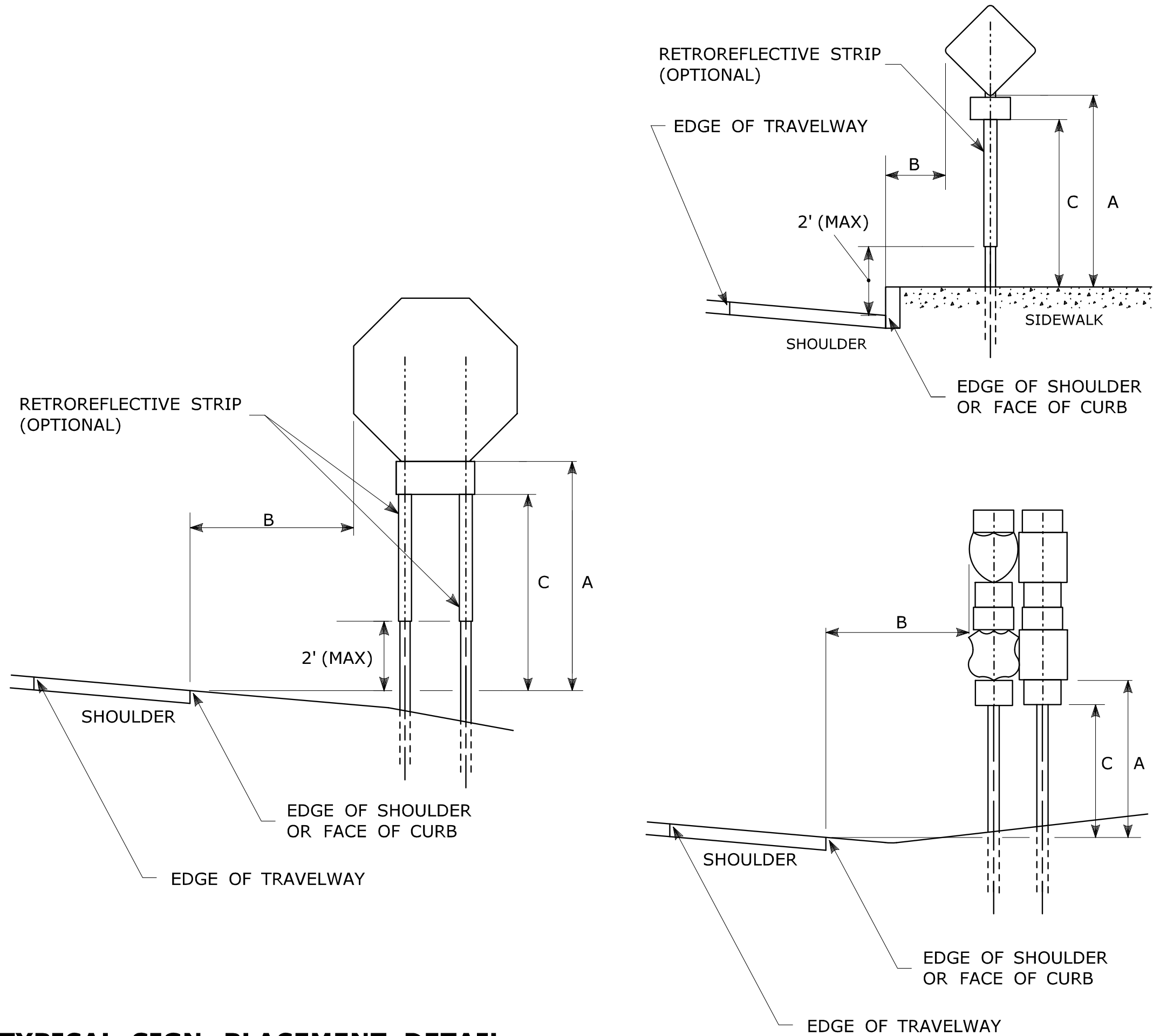


RETROREFLECTIVE STRIP DETAIL

NOTES:

RETROREFLECTIVE STRIPS WHICH ARE 48 IN LONG OR LESS SHALL BE ATTACHED USING 2 BOLTS AND RETROREFLECTIVE STRIPS OVER 48 IN LONG SHALL BE ATTACHED USING 3 BOLTS AS SHOWN ON THE DETAILS ABOVE.
REFER TO STANDARD SHEET No. TR-1208-02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS" FOR MOUNTING DETAILS.

RETROREFLECTIVE STRIP COLOR SHALL MATCH THE BACKGROUND COLOR OF THE SIGN, EXCEPT THAT THE COLOR OF THE STRIP FOR "YIELD" AND "DO NOT ENTER" SIGNS SHALL BE RED.



TYPICAL SIGN PLACEMENT DETAIL

NOTES:

ALL SIGNS AND SHIELDS ON DIRECTIONAL ASSEMBLIES SHALL ABUT VERTICALLY.

REFER TO STANDARD SHEET No. TR-1208-02 "METAL SIGN POSTS AND SIGN MOUNTING DETAILS" FOR SIGN POSTS AND SIGN MOUNTING.

IF A RETROREFLECTIVE STRIP IS USED ON SIGN SUPPORT, IT SHALL BE PLACED FOR THE FULL LENGTH OF THE SUPPORT FROM THE BOTTOM OF THE SIGN TO WITHIN 2 FT ABOVE THE EDGE OF THE ROADWAY.

PARKING SIGNS TYPICALLY USE 45° MOUNTING BRACKET.

DIM. "A" MIN SIGN HEIGHT	DIM. "B" MIN LATERAL OFFSET ①	DIM. "C" MIN PLAQUE HEIGHT ①	ASSEMBLY LOCATION
7' ②	6' 12' ③	5'	SIGNS ON FREEWAYS AND EXPRESSWAYS EXCEPT CHEVRON ALIGNMENT SIGNS, ONE-DIRECTION LARGE ARROW SIGNS, DO NOT ENTER SIGNS, AND WRONG WAY SIGNS
5'	2'	4'	• SIGNS IN RURAL AREAS • DO NOT ENTER AND WRONG WAY SIGNS ALONG EXIT RAMP • DO NOT ENTER AND WRONG WAY SIGNS ON LIMITED ACCESS HIGHWAYS
5'	2'	N/A	• CHEVRON ALIGNMENT SIGNS LOCATED ON FREEWAYS, EXPRESSWAYS, RAMPS, AND IN RURAL AREAS • ONE-DIRECTION LARGE ARROW SIGNS LOCATED ON FREEWAYS, EXPRESSWAYS, RAMPS, AND IN RURAL AREAS
4'	6' 12' ③	N/A	INCIDENT MANAGEMENT SIGNS AND MILE POST MARKER ASSEMBLIES LOCATED ON FREEWAYS AND EXPRESSWAYS
4'	2'	4'	CENTRAL ISLANDS OF ROUNDABOUTS
7'	2' ④	6'	BUSINESS & RESIDENTIAL AREAS WHERE PARKING OR OTHER OBSTRUCTIONS LIMIT VISIBILITY
7'	2' ④	7'	SIDEWALKS ⑤




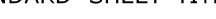
① OR AS DIRECTED BY THE ENGINEER

② 8 FT MINIMUM HEIGHT REQUIRED IF A SUPPLEMENTAL PLAQUE IS SUBMOUNTED BELOW THE MAJOR SIGN.

③ 6 FT FROM EDGE OF SHOULDER, WHEN SHOULDER IS OVER 6 FT WIDE
12 FT FROM EDGE OF TRAVELWAY, WHEN SHOULDER IS LESS THAN 6 FT WIDE.

④ A LATERAL OFFSET OF AT LEAST 1 FT FROM THE FACE OF THE CURB MAY BE USED WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING UTILITY POLES ARE CLOSE TO THE CURB.

⑤ A CLEAR PATH OF NOT LESS THAN 4 FT SHALL BE PROVIDED IN SIDEWALK AREAS.

			THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		 <div>STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION</div> 	SUBMITTED BY:  Mark F. Makuch, P.E. 2018.08.17 09:06:06-04'00'	CTDOT STANDARD SHEET	SIGN PLACEMENT AND RETROREFLECTIVE STRIP DETAILS	TR-1208_01
3	8-2018	INCLUDED INCIDENT MANAGEMENT AND MILE MARKER SIGNS.		NOT TO SCALE	Filename: TR_1208-01-1-2018.dgn Model: TR-1208-01	APPROVED BY:  Mark F. Carlino, P.E. 2018.08.21 07:48:06-04'00'			
2	4-2017	MINOR REVISIONS.							
1	2-2011	MINOR REVISIONS.							
REV.	DATE	REVISION DESCRIPTION	Plotted Date: 8/10/2018						

SECTION A-A

3 1/2" 2" 3/4" TYP. 1 5/16"

1"

3/8" DIA. HOLES 1" O.C.

LENGTH AS REQUIRED

1" 3" TAPER

Detailed description: The drawing consists of two main views. The top view is a cross-section labeled 'SECTION A-A' showing a U-shaped profile. The total width of the top flange is 3 1/2 inches. The height of the flange is 3/4 inch, with a note 'TYP.' (typical). The depth of the U-shape is 2 inches. The width of the bottom opening is 1 5/16 inches. The side view shows a tapered post. The top flange has a thickness of 1 inch. The post has a series of circular holes spaced 1 inch on center (O.C.). The diameter of each hole is 3/8 inch. The length of the post is indicated as 'LENGTH AS REQUIRED'. The bottom of the post tapers to a point, with a taper angle of 3 degrees. A break line is shown in the middle of the post to indicate it is longer than shown.

Diagram illustrating the components of a sign panel mounting assembly:

- WASHER $\frac{11}{32}$ " I.D. X $\frac{11}{16}$ " O.D. X $\frac{1}{16}$ " THICK
- SELF LOCKING NUT WITH PLASTIC OR FIBER INSERT
- NYLON WASHER $\frac{3}{8}$ " I.D. X $\frac{5}{8}$ " O.D. X $\frac{1}{32}$ " THICK
- BACK-UP PLATE $\frac{1}{8}$ " THICK
- SIGN PANEL
- $\frac{5}{16}$ " BOLT HEX HEAD

Diagram illustrating the components and dimensions of a sign panel assembly:

- WASHER $1\frac{1}{32}$ " I.D. X $1\frac{1}{16}$ " O.D. X $\frac{1}{16}$ " THICK
- SIGN PANEL
- SELF LOCKING NUT WITH PLASTIC OR FIBER INSERT
- $\frac{5}{16}$ " BOLT HEX HEAD
- NYLON WASHER $\frac{3}{8}$ " I.D. X $\frac{5}{8}$ " O.D. X $\frac{1}{32}$ " THICK
- BACK-UP PLATE $\frac{1}{8}$ " THICK

Technical drawing of a rectangular plate. The width is labeled as 2" and the height is labeled as 3 1/2". A hole is located in the center, labeled as 3/8" DIA. HOLE. The hole is represented by a circle with a crosshair in the center.

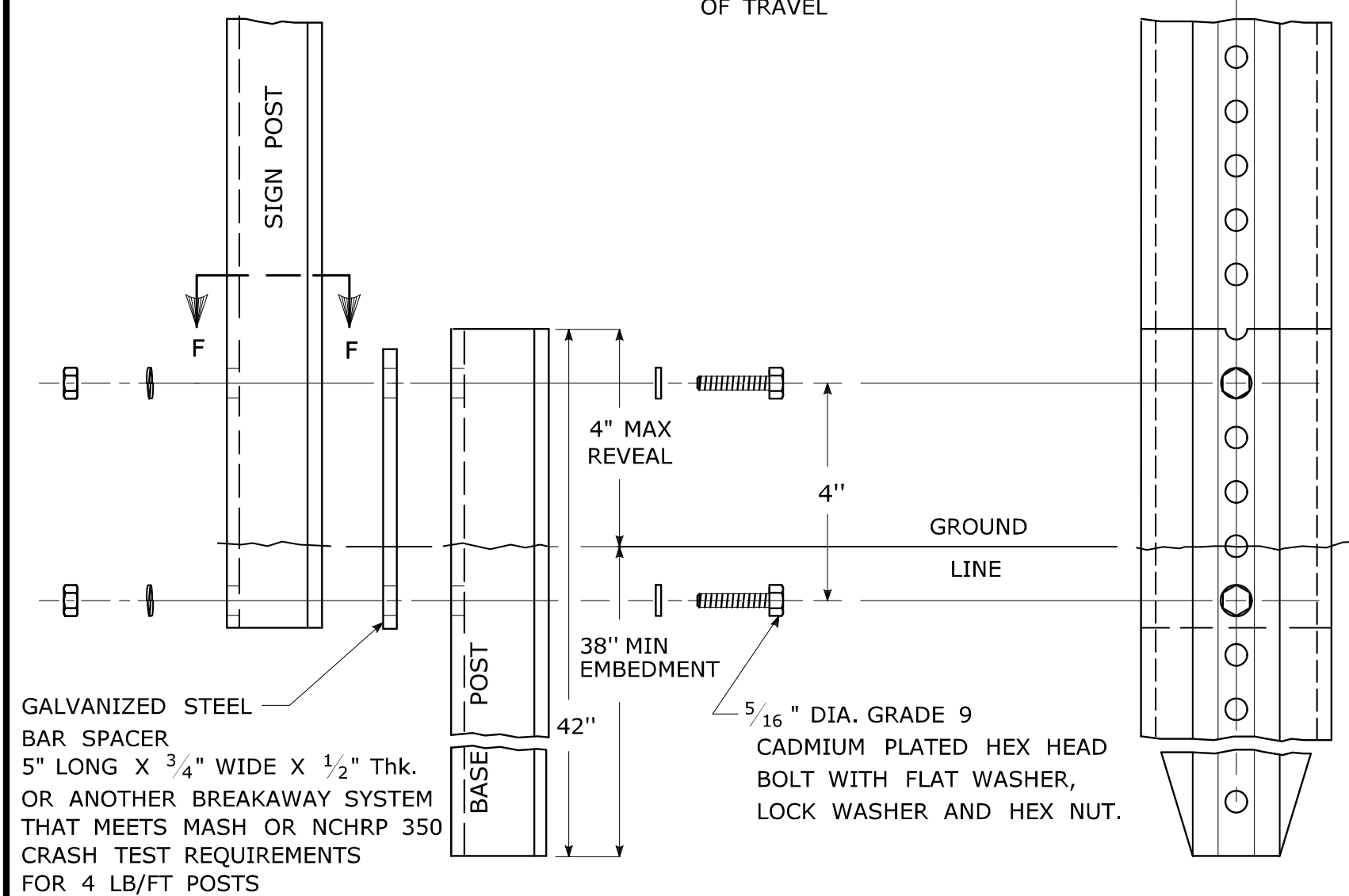
BOLTS - STAINLESS STEEL CONFORMING TO ASTM F593,
ALLOY GROUP 1 OR 2 (ALLOY TYPES 304 OR 316).
SELF LOCKING NUTS - STAINLESS STEEL CONFORMING TO ASTM F594,
ALLOY GROUP 1 OR 2 (ALLOY TYPES 304 OR 316).
WASHERS - STAINLESS STEEL CONFORMING TO ASTM A240,
(ALLOY TYPES 304 OR 316).

Technical drawing of a tapered pile. The drawing shows a vertical pile with a series of circular holes along its length. Key dimensions and labels include:

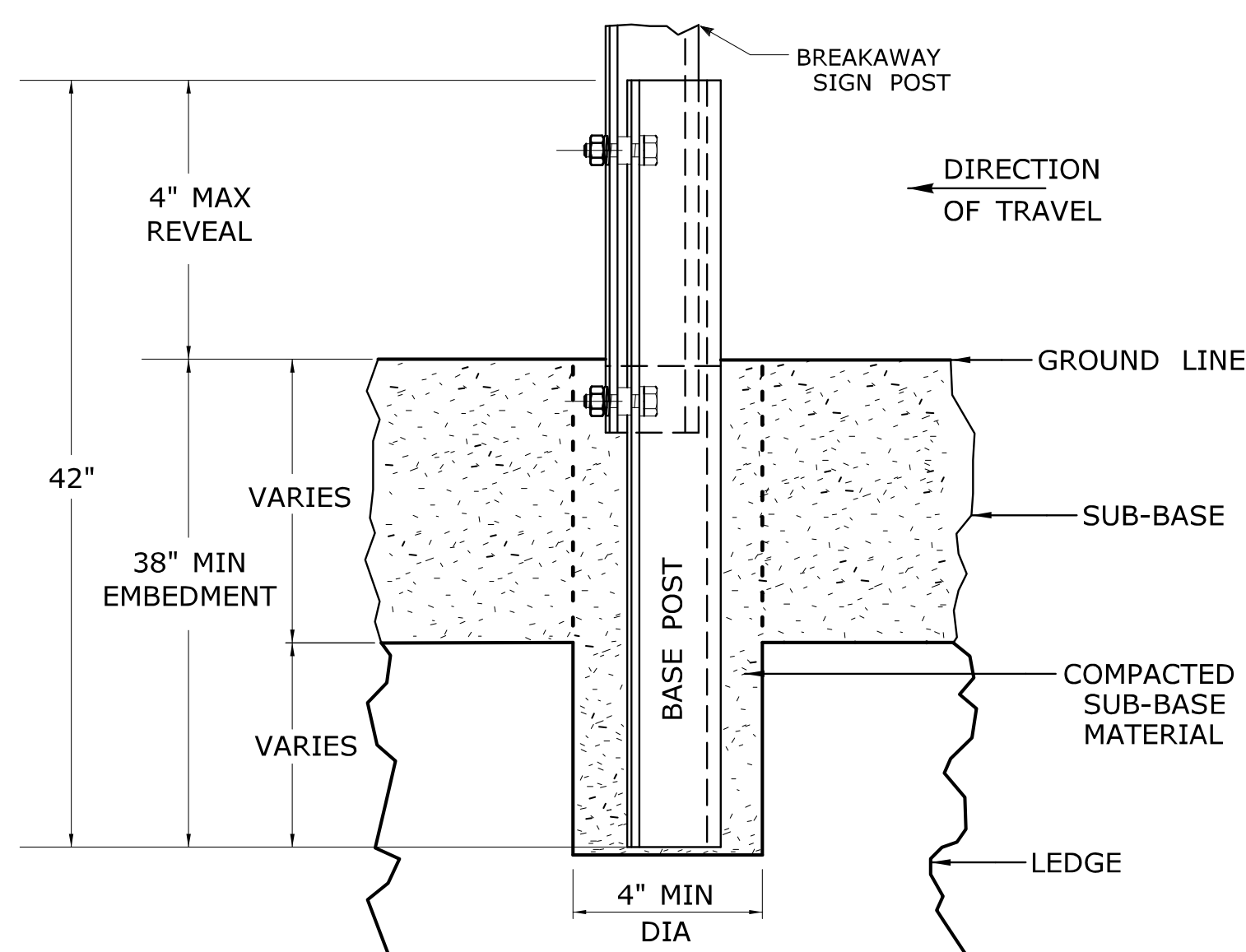
- Top Section:** A dimension of $\frac{3}{4}$ " is shown at the top right.
- Vertical Dimensions:**
 - A dimension of $6'-6"$ OR LENGTH AS REQUIRED is shown on the left side.
 - A dimension of $24"$ MIN EMBEDMENT is shown on the right side, below the ground line.
- Ground Line:** A horizontal line labeled "GROUND LINE" is shown on the right side.
- Bottom Section:**
 - A dimension of $3"$ (75) is shown at the bottom left, indicating the width of the pile base.
 - A label "TAPER" points to the bottom of the pile.
- Holes:** A label "30 - $\frac{3}{8}$ " DIA. HOLES 1" O.C." points to the series of circular holes along the pile's length.
- Other Labels:**
 - "C" is labeled on the left side, pointing to the center of the holes.
 - "30 - $\frac{3}{8}$ " DIA. HOLES 1" O.C." is labeled on the right side, pointing to the holes.

1. STEEL FOR DELINEATOR POSTS SHALL BE ASTM A36 STEEL.
STEEL FOR ALL OTHER POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499 GRADE 80 AND TO THE CHEMICAL REQUIREMENTS OF ASTM A1 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT (MASS) OF 91 LBS. OR GREATER PER LINEAR YARD.
2. AFTER FABRICATION, ALL STEEL POSTS, STRAPS AND PLATES SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A123.
3. WASHERS FOR BREAKAWAY INSTALLATIONS SHALL MEET ASTM F436, TYPE 1.
4. SPACER BAR FOR BREAKAWAY INSTALLATION SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A36.
5. ALL BOLTS, NUTS, AND WASHERS FOR BREAKAWAY INSTALLATIONS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A153.
6. ALL SIGN POSTS SHALL HAVE BREAKAWAY FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN THE CURRENT "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS." THE BREAKAWAY FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CARRY THE SIGNS SHOWN IN THE PLANS AT 60 mph WIND LOADINGS. INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
7. SIGN POSTS SHALL BE 4 LBS./FT.

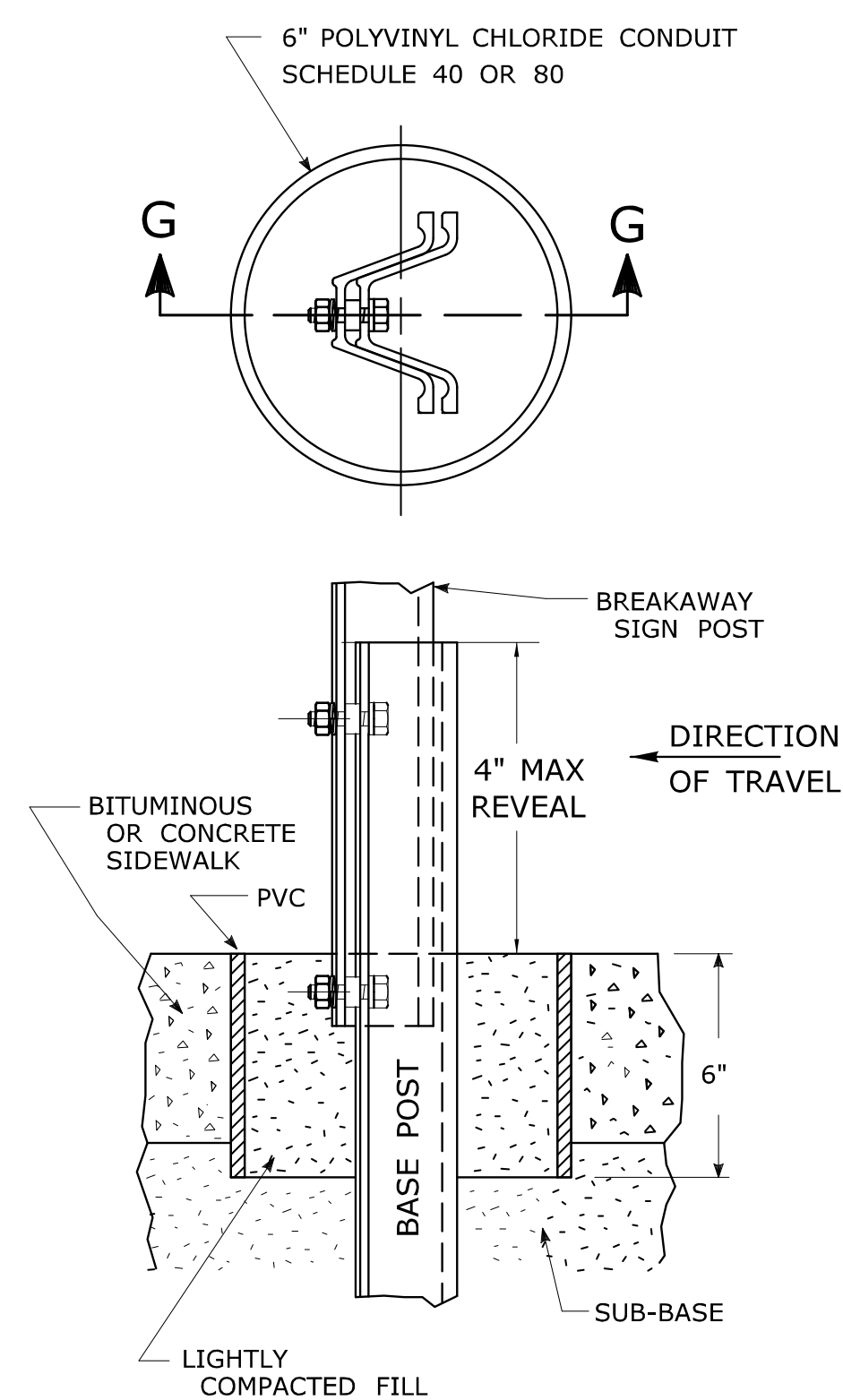
SECTION F-F

DIRECTION
OF TRAVEL

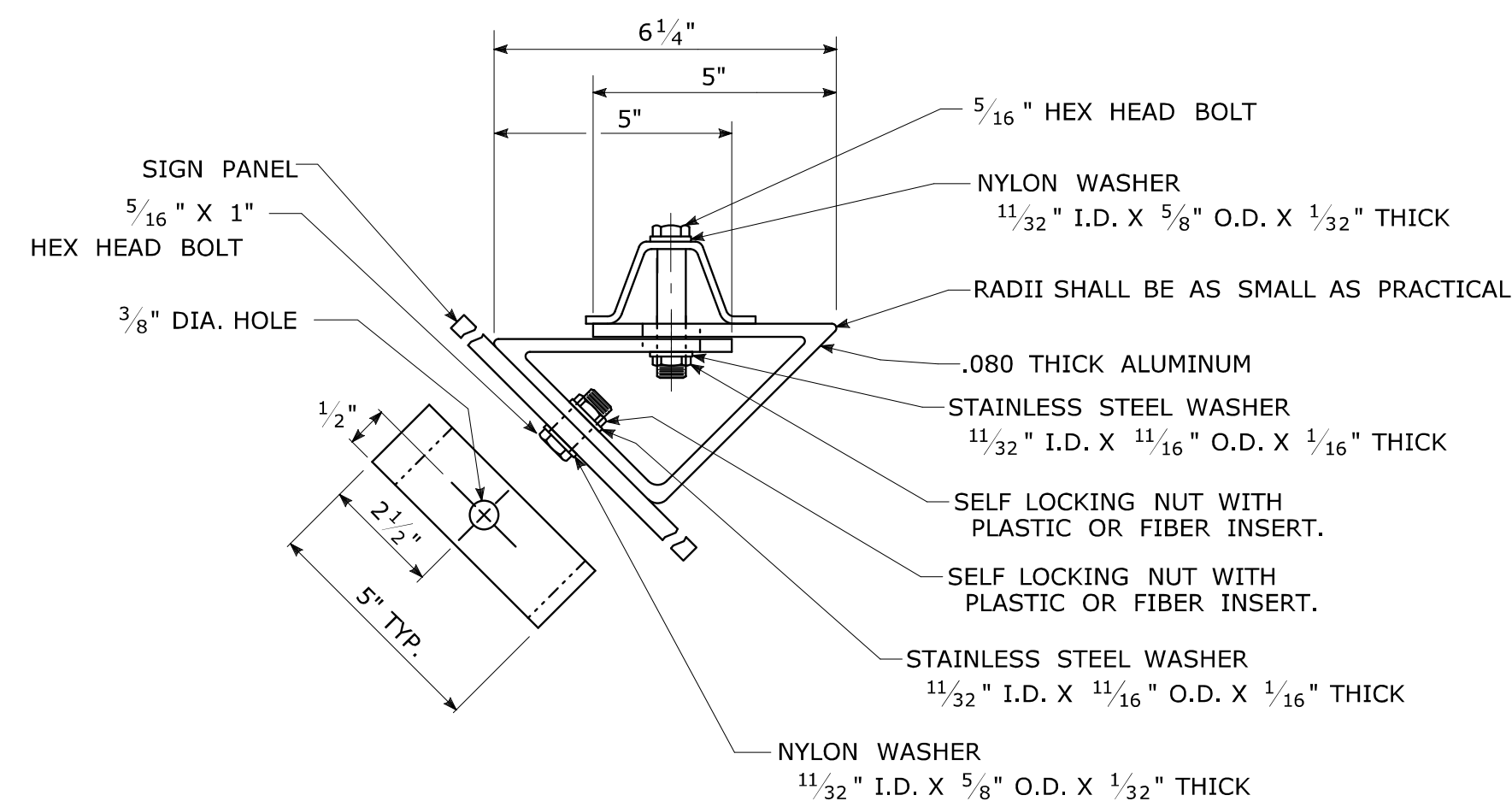
HOLE SHALL BE FILLED WITH SUB-BASE MATERIAL AND COMPACTED WITH A TAMPING BAR, OR TECHNIQUE APPROVED BY THE ENGINEER, PRIOR TO BASE POST INSTALLATION.




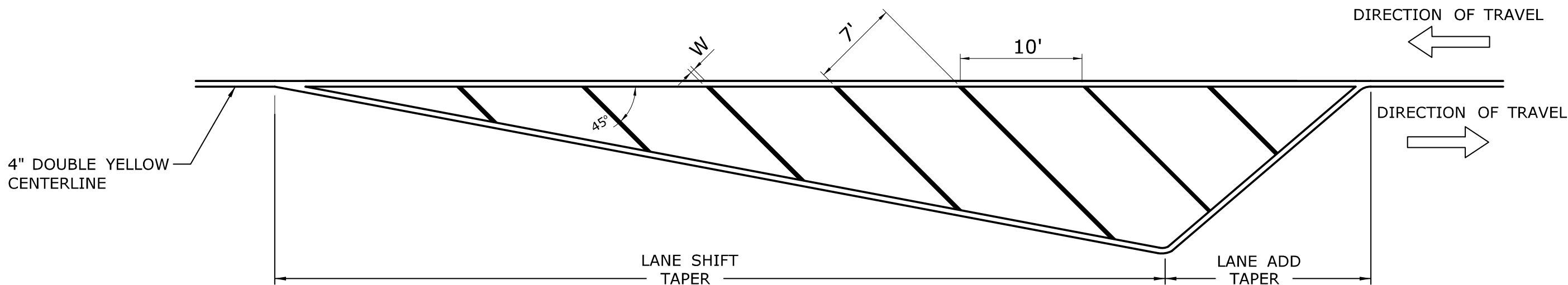
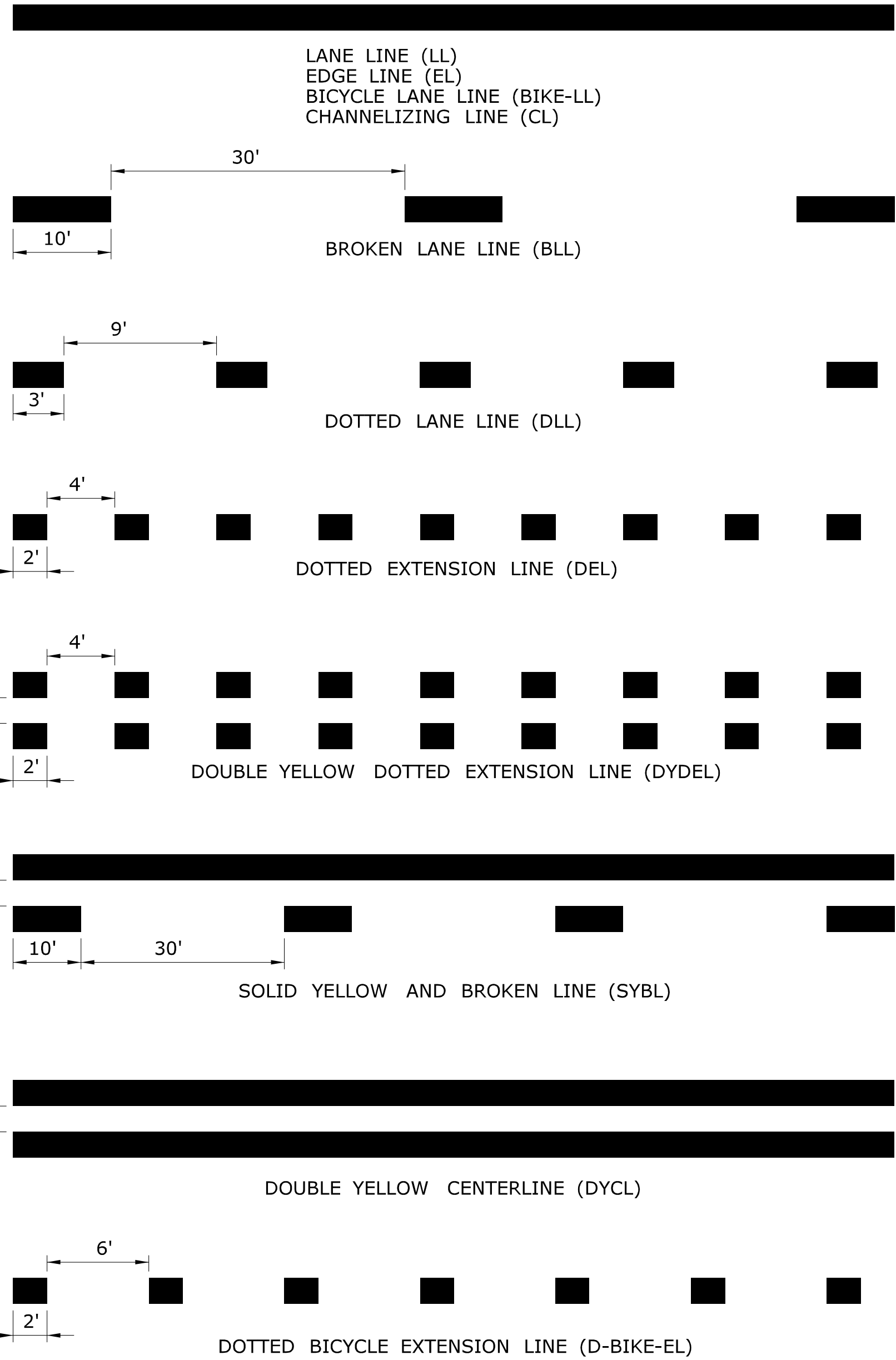
6" POLYVINYL CHLORIDE CONDUIT
SCHEDULE 40 OR 80



Technical drawing of a rectangular plate. The overall width is 3 1/8". The overall height is 1". There is a 3/8" DIA. HOLE centered horizontally. The hole is 1/2" from the right edge. The drawing shows the hole as a circle with a cross inside, and the dimensions are indicated with arrows and text.

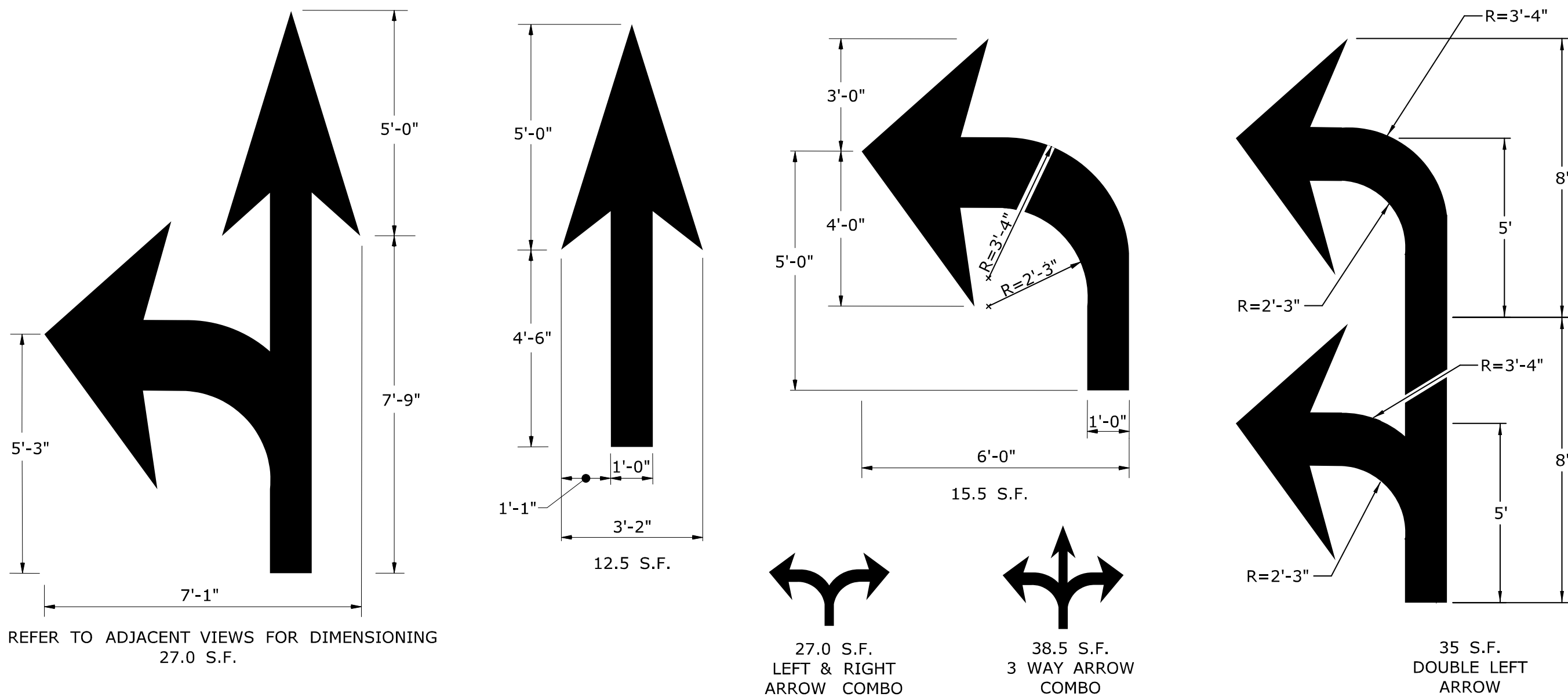


			THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	NOT TO SCALE	 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION Filename: TR-1208_02_May_2017_Revision.dgn Model: TR-1208_02	SUBMITTED BY: <i>Mark F. Makuch</i> <i>Mary E. Baker</i>	NAME/DATE/TIME: Mark F. Makuch, P.E. 2017.06.07 07:30:30-04'00" Mary E. Baker, P.E. 2017.06.13 15:28:14-04'00"	CTDOT STANDARD SHEET	METAL SIGN POSTS AND SIGN MOUNTING DETAILS	STANDARD SHEET TITLE:	GUIDE SHEET NO.:			
2	6-2017	SIGN POST REVISIONS.				APPROVED BY: <i>Gregory M. Dorosh</i>	NAME/DATE/TIME: Gregory M. Dorosh, P.E. 2017.06.15 09:27:29-04'00"					OFFICE OF ENGINEERING		
1	2-2011	MINOR REVISIONS.												
REV.	DATE	REVISION DESCRIPTION	Plotted Date: 6/6/2017											



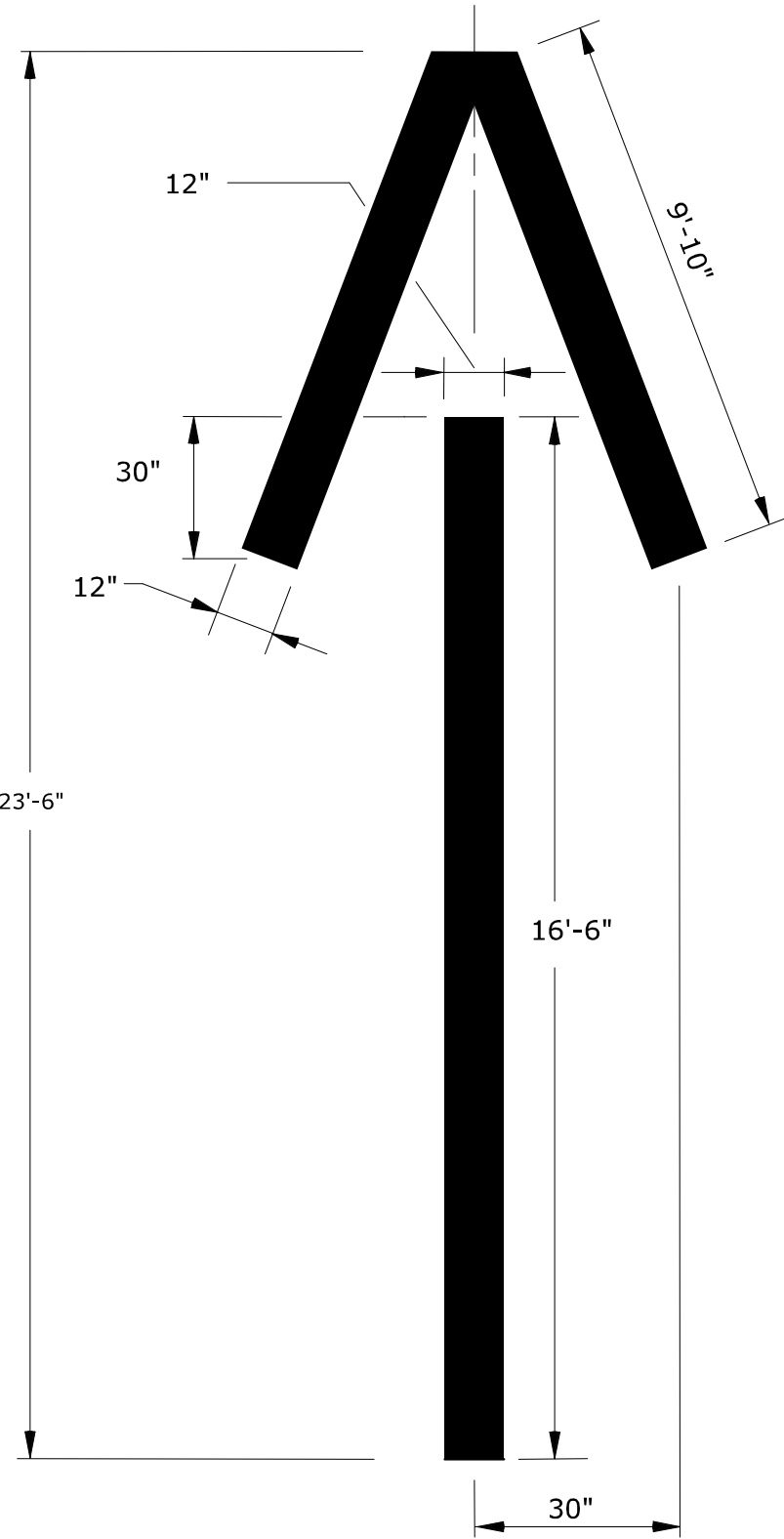
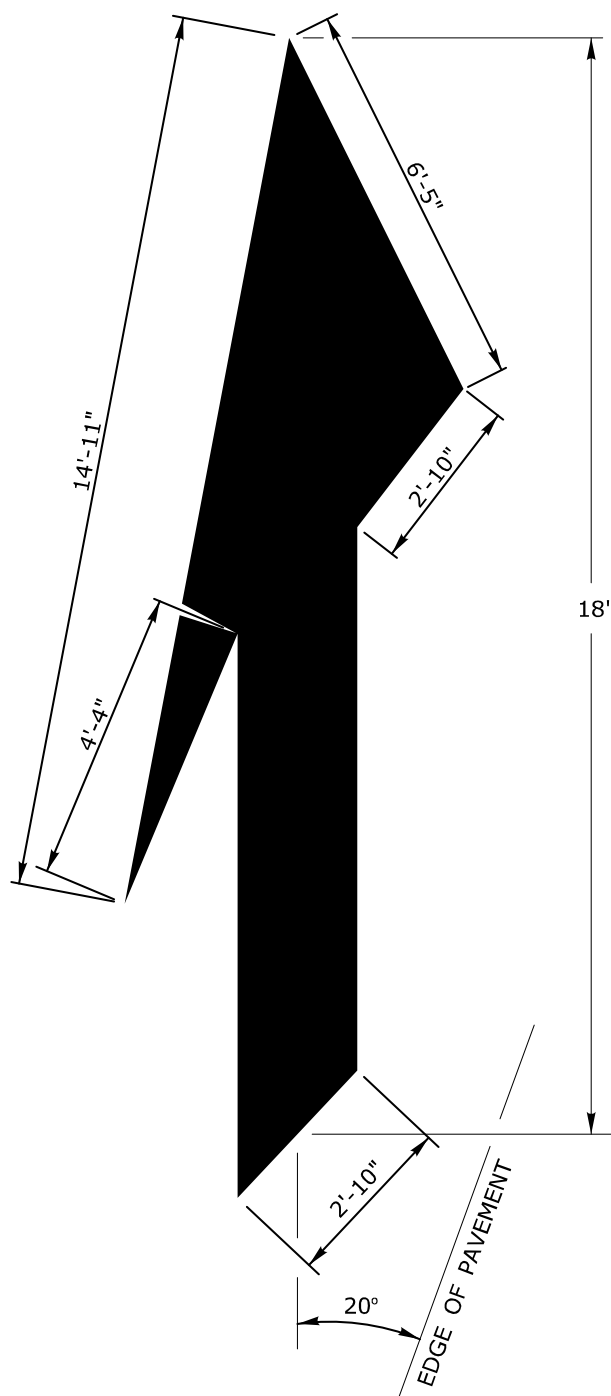
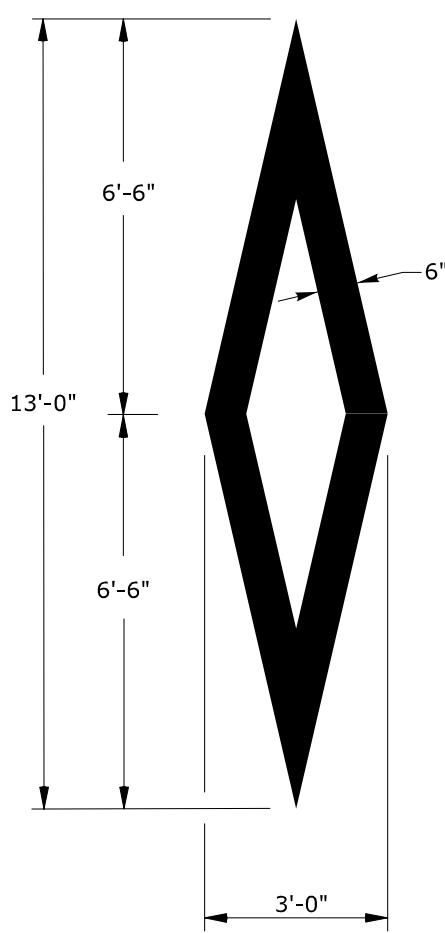
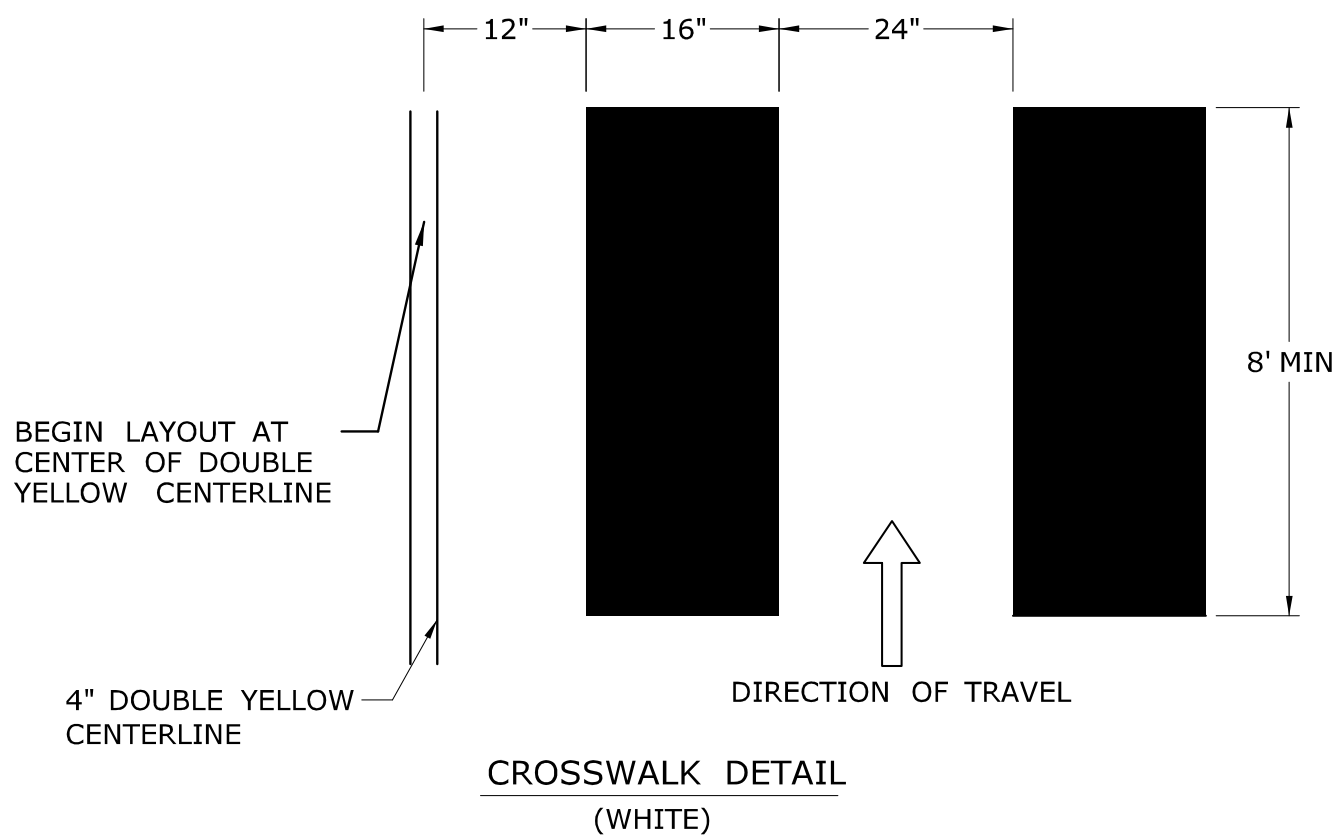
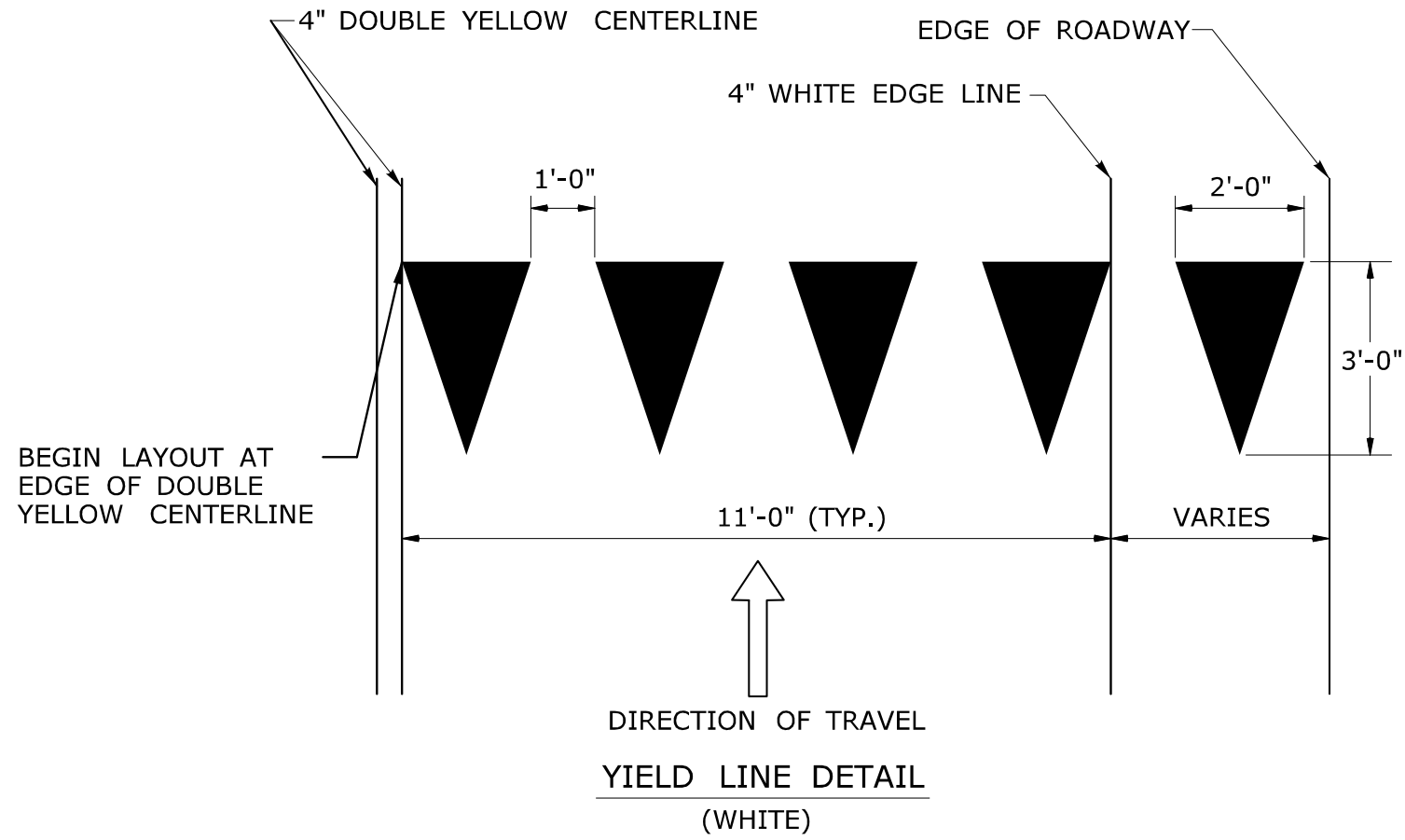
CROSS HATCHED ISLAND DETAIL
(YELLOW)

W IS TO BE 6" WHEN POSTED SPEED \leq 45 MPH
W IS TO BE 12" WHEN POSTED SPEED $>$ 45 MPH
CROSS HATCHED ISLANDS ARE TO BE INSTALLED WHERE CALLED FOR ON THE PLANS



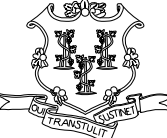

PAVEMENT ARROW DETAILS
(WHITE)

ARROWS SHALL BE CENTERED IN TRAVEL LANE

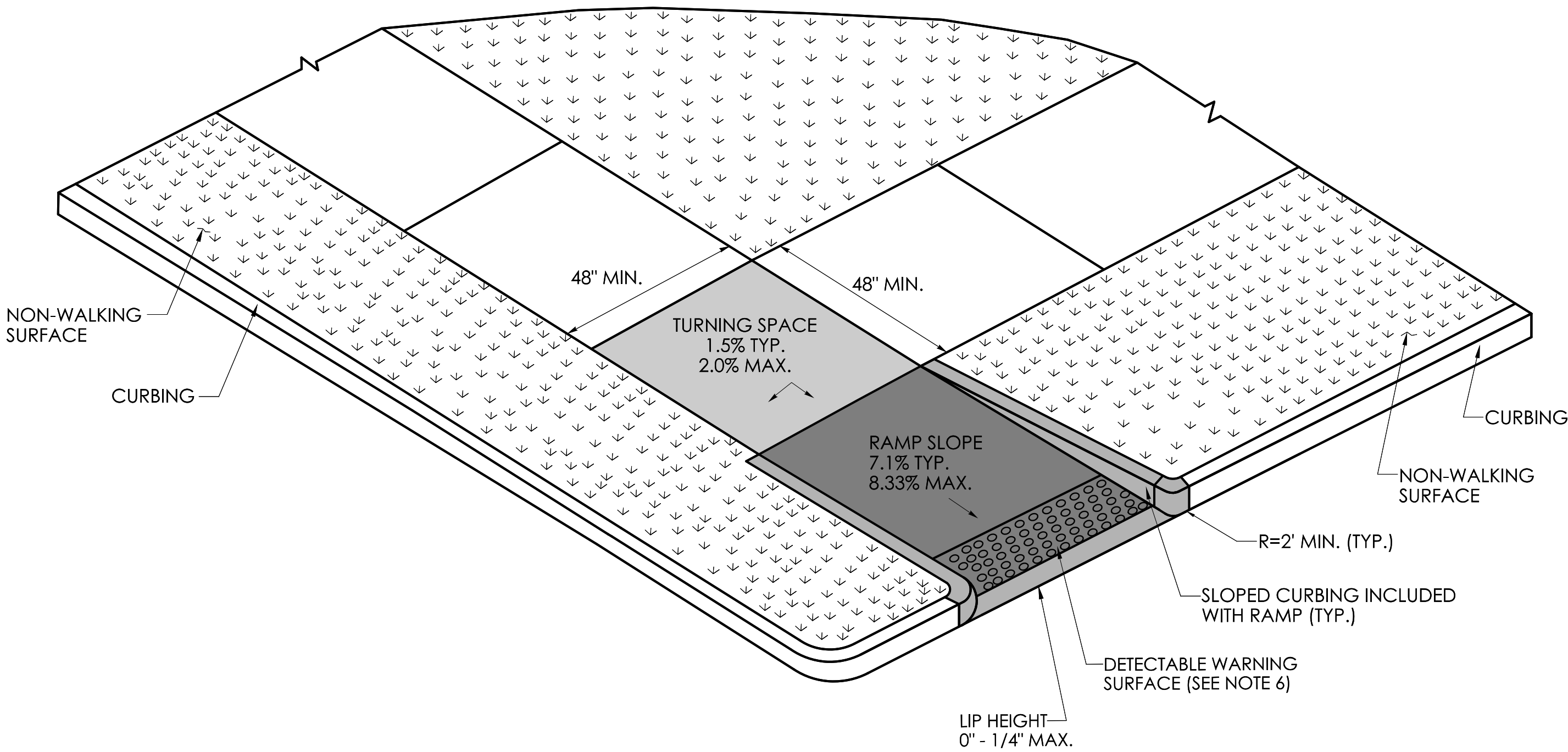


NOTES :

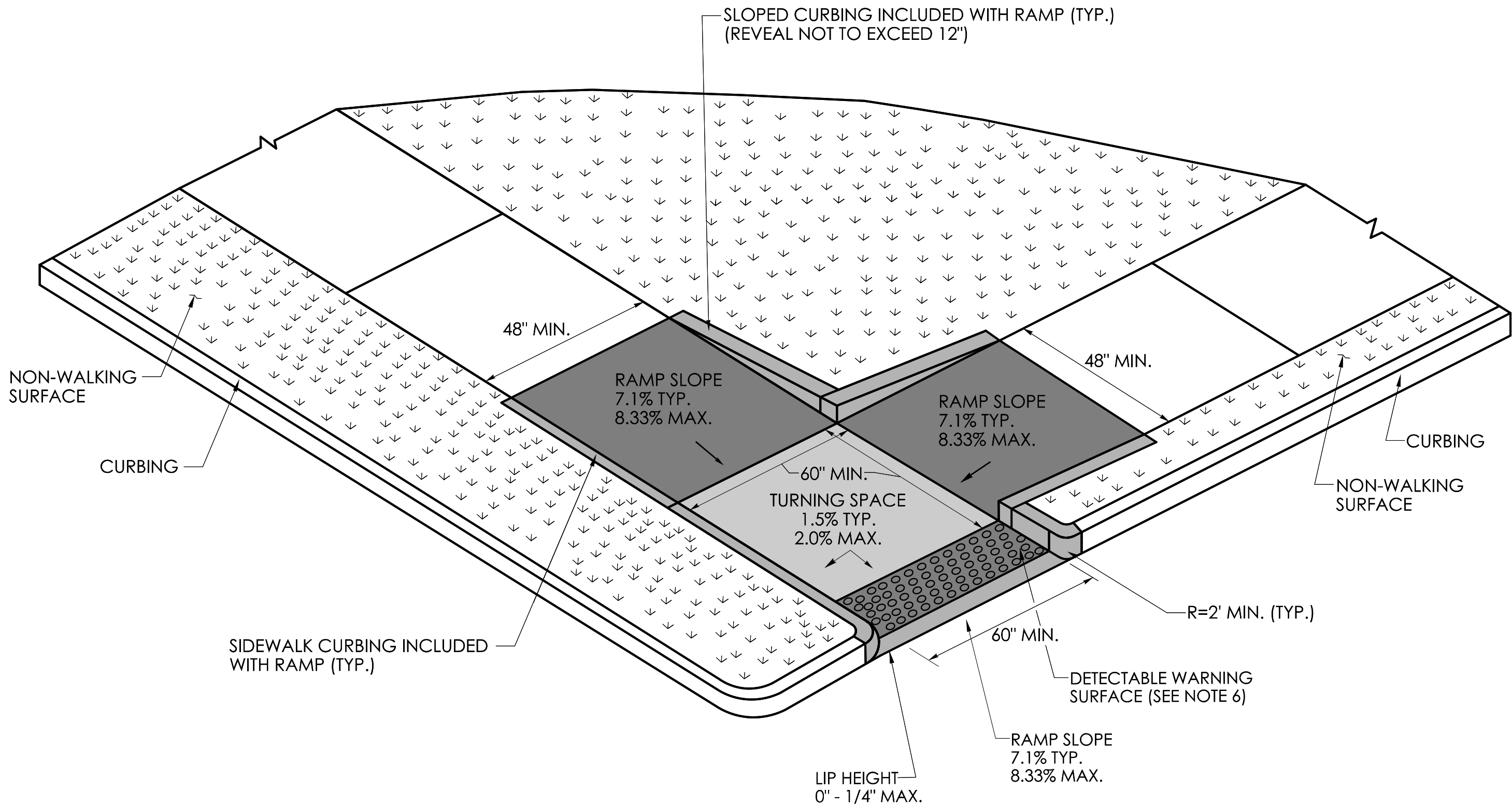
1. AREA OF PAVEMENT MARKINGS AS INDICATED IS APPROXIMATE.
2. RIGHT TURN PAVEMENT MARKING ARROWS ARE MIRROR IMAGE OF LEFT TURN PAVEMENT MARKING ARROWS.

			THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.		 STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION		SUBMITTED BY: <i>Mark F. Makuch</i> Mark F. Makuch, P.E. 2018.08.17 09:07:44-04'00'	CTDOT STANDARD SHEET OFFICE OF ENGINEERING	STANDARD SHEET TITLE: PAVEMENT MARKING LINES AND SYMBOLS	STANDARD SHEET NO.: TR-1210_04
1	8-2018	REMOVED ROUNDABOUT MARKINGS.	Plotted Date: 8/10/2018	NOT TO SCALE	Filename: TR-1210_04.dgn	Model: CT-Civil2D-Sheet	APPROVED BY: <i>Mark F. Carino</i> Mark F. Carino, P.E. 2018.08.21 07:48:45-04'00'			

- GENERAL NOTES:**
1. SIDEWALK RAMPS SHALL HAVE A COARSE BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.
 2. VERTICAL SURFACE DISCONTINUITIES AT JOINTS SHALL NOT EXCEED 1/4 INCH.
 3. REMOVAL OF EXISTING SIDEWALK FOR NEW RAMP INSTALLATIONS SHALL BE TO THE NEAREST EXPANSION OR CONTRACTION JOINT.
 4. THE RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.33 PERCENT MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET.
 5. DETECTABLE WARNING SURFACES SHALL BE INSTALLED ON SIDEWALK RAMPS AT PEDESTRIAN STREET CROSSINGS, PEDESTRIAN REFUGE ISLANDS AND RAILROAD CROSSINGS ALONG STREETS OR HIGHWAYS.
 6. DETECTABLE WARNING SURFACES SHALL EXTEND 2 FEET MIN. IN THE DIRECTION OF PEDESTRIAN TRAVEL AND SPAN THE ENTIRE RAMP OPENING.
 7. ALL GUIDESHEET VALUES COMPLY WITH PROWAG DRAFT 2013 GUIDELINES. UPDATED VALUES WILL BE MADE TO COMPLY WITH PROWAG FINAL RULE ONCE OFFICIALLY THE LAW.
 8. CTDOT DESIGN STANDARD USE THE PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG) SEE ENGINEERING DIRECTIVE ED-2019-7.
 9. CURB RAMPS SHALL BE CONSTRUCTED SO THAT WATER WILL NOT ACCUMULATE WITHIN THE PEDESTRIAN ACCESS ROUTE.



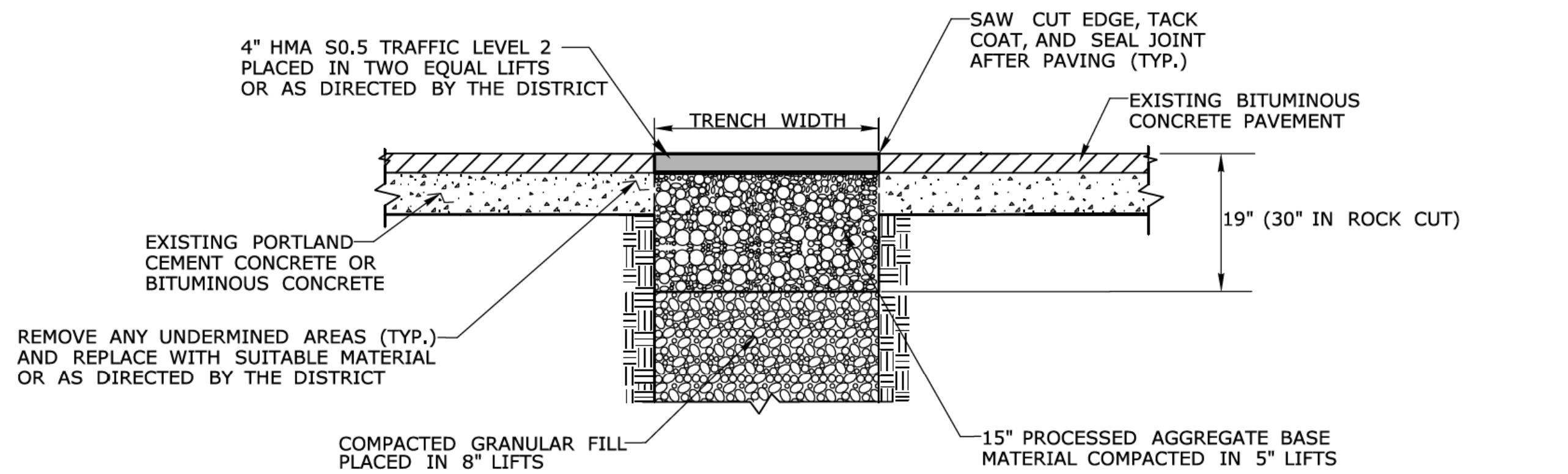
**RESTRICTED PEDESTRIAN CROSSING SIDEWALK RAMP
WITH NON-WALKING SURFACE
(TYPE 20)**



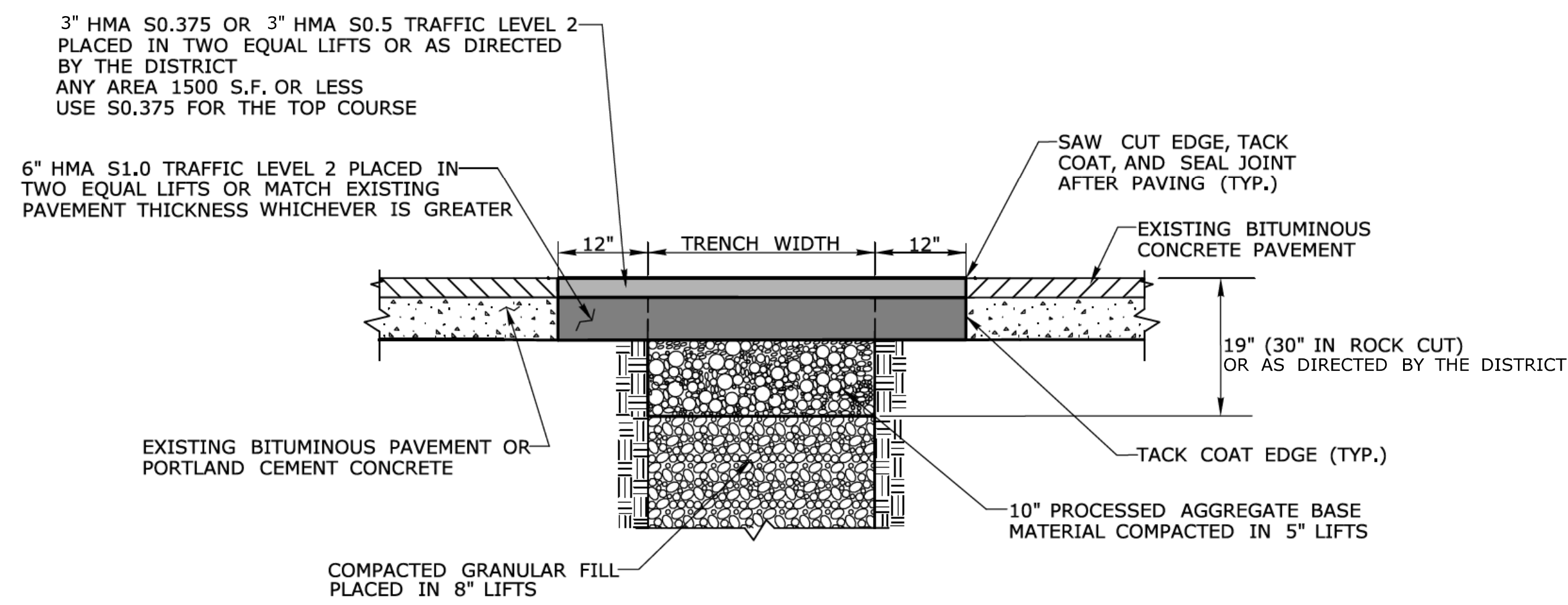
**RESTRICTED PEDESTRIAN CROSSING
WITH LANDING AT BOTTOM AND NON-WALKING SURFACE
(TYPE 21)**

REV.	DATE	REVISION DESCRIPTION

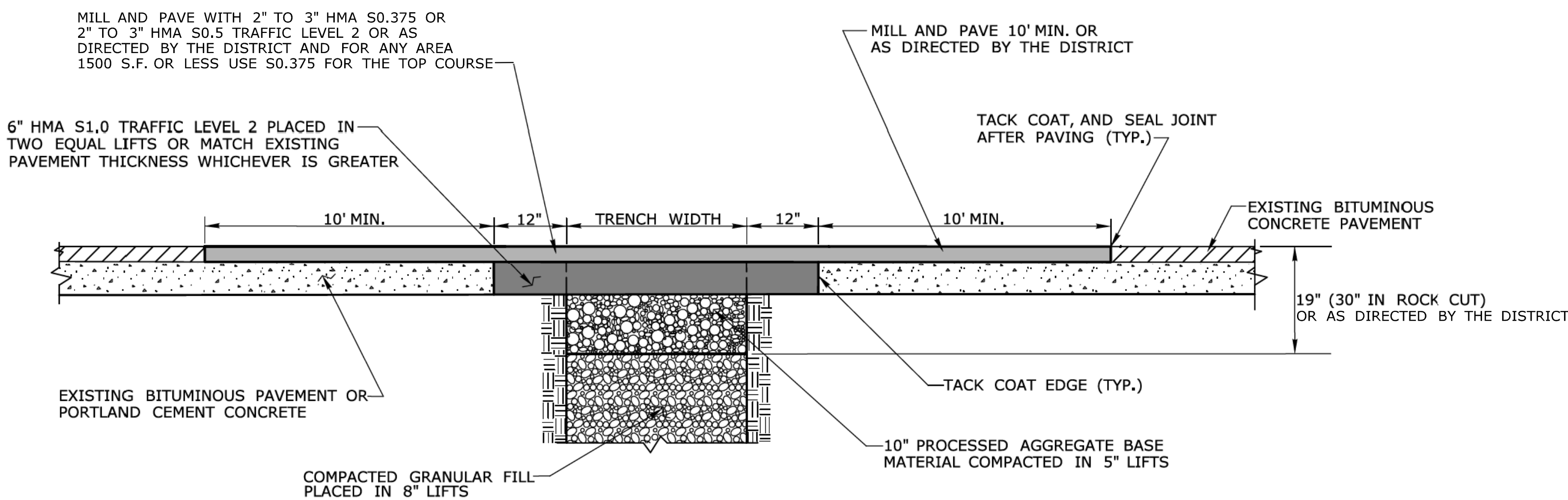
DESIGNER/DRAFTER:	CHECKED BY:	SIGNATURE/ BLOCK:	APPROVED BY:	PROJECT NUMBER: 0000-0000	DRAWING NO.
OFFICE OF ENGINEERING 2800 BERLIN TURNPIKE NEWINGTON, CT 06111		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION		PROJECT DESCRIPTION: SAMPLE PROJECT DESCRIPTION	SHEET NO.
TOWN(S): SAMPLE TOWN(S)		DRAWING TITLE: CONCRETE SIDEWALK RAMPS SHEET 8 OF 11			



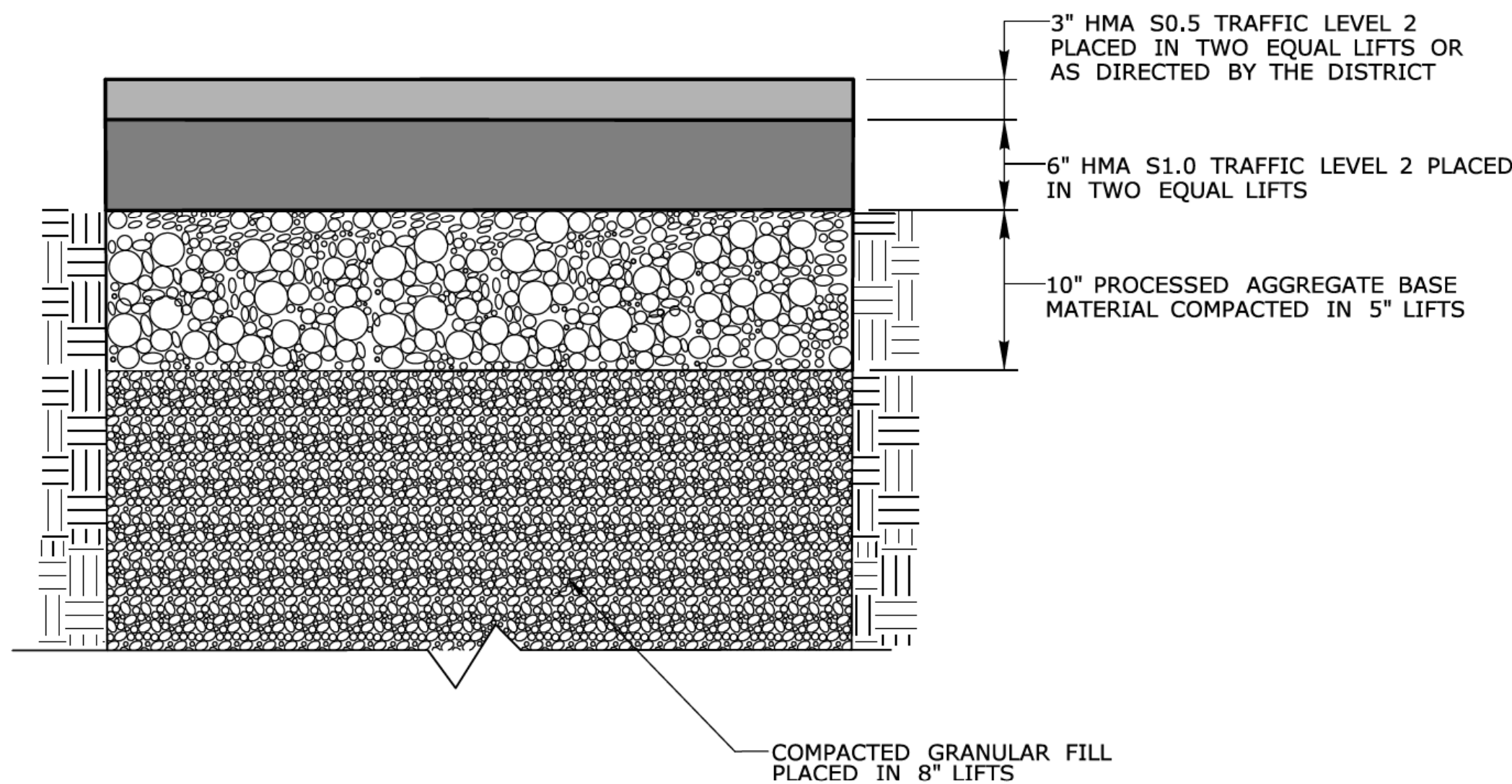
TEMPORARY PAVEMENT REPAIR FOR TRENCH THROUGH OVERLAID PORTLAND CEMENT CONCRETE OR BITUMINOUS CONCRETE PAVEMENT



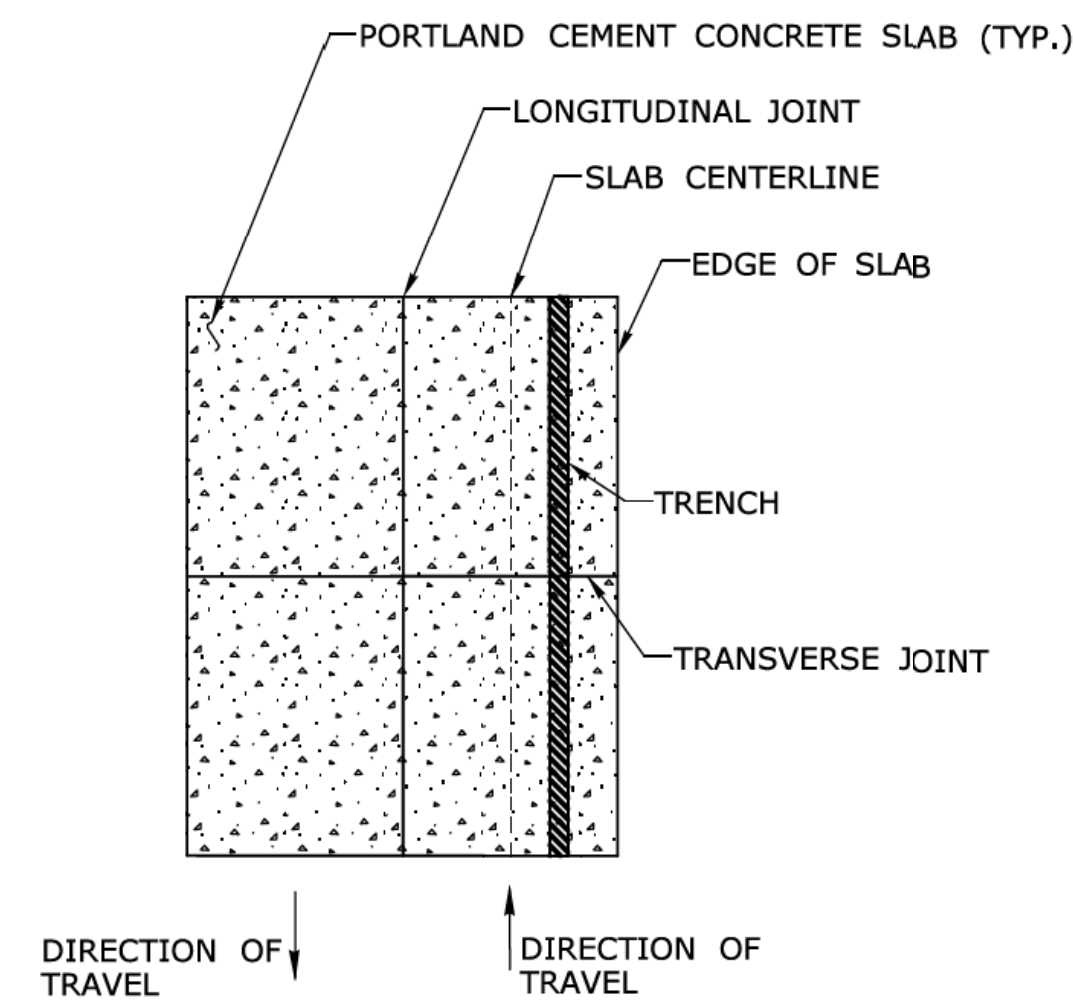
PERMANENT PAVEMENT REPAIR WITHOUT MILLING - THROUGH PORTLAND CEMENT CONCRETE OR BITUMINOUS CONCRETE PAVEMENT



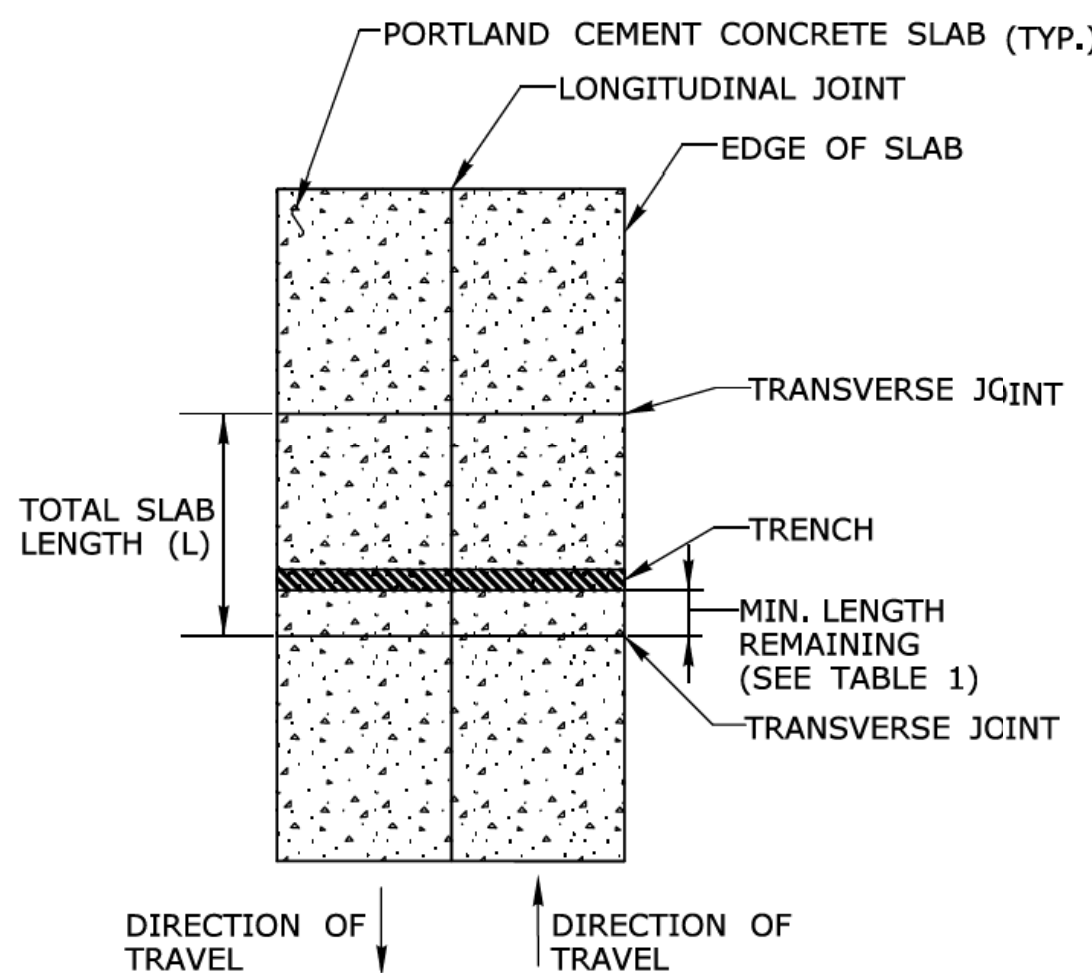
PERMANENT PAVEMENT REPAIR WITH MILLING



ROADWAY PROFILE



LONGITUDINAL TRENCHING FOR JOINTED CONCRETE PAVEMENT (SEE NOTE 1)



TRANSVERSE TRENCHING FOR JOINTED CONCRETE PAVEMENT (SEE NOTE 2)

GENERAL NOTES:

1. LONGITUDINAL TRENCHING FOR JOINTED CONCRETE PAVEMENT:

A. IF THE LONGITUDINAL TRENCH FALLS BETWEEN THE SLAB CENTERLINE AND THE EDGE OF SLAB, REMOVE CONCRETE AND BITUMINOUS CONCRETE PAVEMENT FROM THE TRENCH EDGE TO THE EDGE OF ROAD. IF THE LONGITUDINAL TRENCH FALLS BETWEEN THE LONGITUDINAL JOINT AND THE SLAB CENTERLINE, REMOVE THE ENTIRE CONCRETE SLAB AND BITUMINOUS CONCRETE PAVEMENT TO THE EDGE OF ROAD. IN EITHER CASE REBUILD WITH THE FOLLOWING:

- PLACE HMA S1.0 TRAFFIC LEVEL 2 IN TWO EQUAL 4" - 5" LIFTS TO MATCH EXISTING CONCRETE PAVEMENT THICKNESS
- PLACE HMA S0.5 TRAFFIC LEVEL 2 IN 2" - 3" LIFTS TO MATCH EXISTING BITUMINOUS CONCRETE PAVEMENT THICKNESS, WITH THE FINAL LIFT BEING 2"

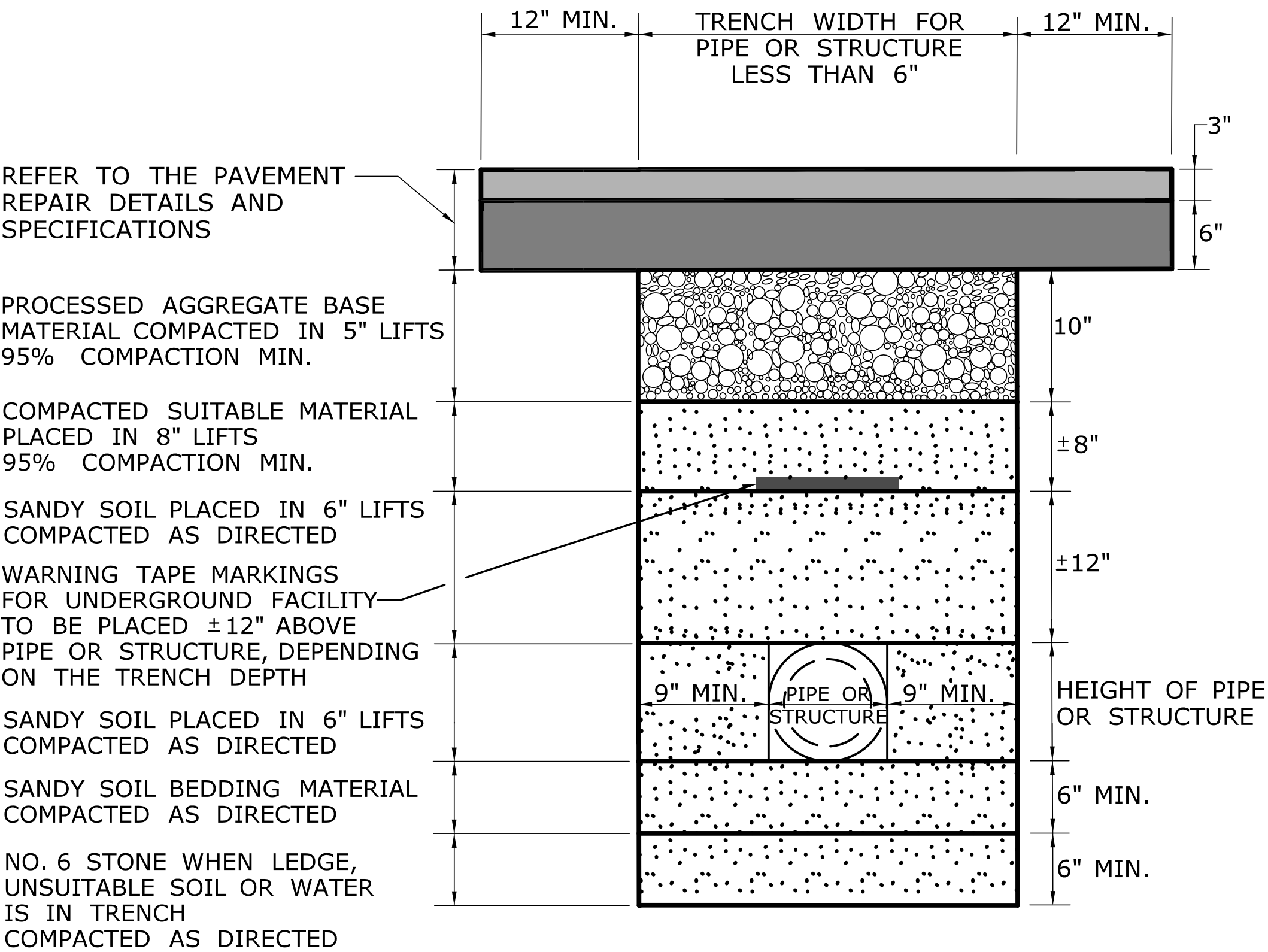
2. TRANSVERSE TRENCHING FOR JOINTED CONCRETE PAVEMENT:

TABLE 1	
TOTAL SLAB LENGTH (L)	MIN. LENGTH REMAINING
40' OR LONGER	1/4 L
15' - 40'	10'
15' OR SHORTER	REBUILD TO NEAREST JOINT

A. FOR TRANSVERSE TRENCHES, THE MINIMUM SLAB LENGTH AS SHOWN IN TABLE 1 SHALL BE LEFT IN PLACE TO THE NEAREST TRANSVERSE JOINT. IF THIS CRITERIA CANNOT BE MET, THE EXISTING SLAB AREA FROM THE TRENCH EDGE TO THE NEAREST TRANSVERSE JOINT SHALL BE REMOVED AND REBUILT AS FOLLOWS:

- PLACE HMA S1.0 TRAFFIC LEVEL 2 IN TWO EQUAL 4" - 5" LIFTS TO MATCH EXISTING CONCRETE PAVEMENT THICKNESS
- PLACE HMA S0.5 TRAFFIC LEVEL 2 IN 2" - 3" LIFTS TO MATCH EXISTING BITUMINOUS CONCRETE PAVEMENT THICKNESS, WITH THE FINAL LIFT BEING 2"

TRENCH FOR PIPES OR STRUCTURES
LESS THAN 6"



GENERAL NOTES:

1. THE MINIMUM DEPTH OF THE TRENCH SHALL BE IN ACCORDANCE WITH THE LATEST PURA AND/OR CTDOT UTILITY REGULATIONS.
2. COMPACTED SUITABLE MATERIAL AND SANDY SOIL LAYERS MAY BE ADJUSTED DEPENDING ON THE TRENCH DEPTH AS APPROVED BY CTDOT.
3. COMPACTION REQUIREMENTS MUST BE MET REGARDLESS OF TRENCH CHARACTERISTICS.